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Ranges
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Pastures

Cooperative Extension Work in Agriculture and Home Economics

Extension Service Circular 281 January 1938

SUMMARY OF

RANGE-LIVESTOCK AND RANGE-MANAGEMENT EXTENSION WORK IN THE

ELEVEN WESTERN STATES - 1932 TO 1936, INCLUSIVE

PART I, - RANGE-LIVESTOCK MANAGEMENT (Continued)

Section 2 - Sheep

Flock Management

CALIFORNIA

1932

Animal Husbandry Specialist:

Breeding Flock Management: Mendocino County has taken the lead in this work. During the past three years we have seen a rapid spread of influence from the results of one ranch demonstration in flock selection in this county. The demonstration was started three years ago in cooperation with a sheepman who operates under conditions typical of many northcoast sheep ranches. Here the flock consisting of sheep of Merino-Rambouillet breeding has been carefully sorted. One top band has been established for the production of replacement ewe lambs. Desirable fleeces and proper body conformation were important characteristics sought in ewes going into the top or foundation band. Careful attention was then given to proper type Rambouillet rams to mate with these ewes. The remaining ewes in the flock have been bred each year to Shropshire or Southdown rams, with all lambs from such matings being marketed. In the selection process all undesirable ewes have been culled and sold. Data on wool clip and lamb crop has been recorded. During the first two years of the demonstration, comparison was made between Shropshire and Southdown rams for production of market lambs. The two years' results showed that the Merino-Shropshire cross produced more pounds of lamb than did the Merino-Southdown cross, although the Southdown cross showed a slight advantage in quality. Three annual field days have been held at this demonstration ranch, which have drawn an attendance of 800 persons from seven counties. Results of this one demonstration have definitely affected breeding practices employed on a large number of ranches in the whole north coast area, especially in Mendocino, Sonoma, Humboldt, and Marin Counties.

California-1932 (Continued)

California Ram Sale and Wool Show: Each year in the latter part of May, there is held at the State Fair grounds in Sacramento, the California Ram Sale and Wool Show. The two affairs are sponsored by the California Wool Growers' Association. These two events attract large crowds of sheepmen from all parts of California and some from nearby States. The function of the ram sale is to serve as a reliable clearing house for a large number of superior type stud and range rams. The wool show is held solely for educational purposes. The first aim of the wool show is to help growers to know more about the characteristics, quality, and market value of their wool clips. The second function is to emphasize the importance of constructive breeding practices which will result in improvement of both wool and lamb crops.

In 1936, California Ram Sale and Wool Show was held May 27 and 28. A total of 1,671 rams was sold for an average price of $42.77 per head. One hundred seventy purebred ewes were sold for an average of $19.56 per head. This seed stock was well distributed about the State, several head going to Oregon and Nevada.

The 1936 Wool Show brought out 167 entries representing 19 California counties and a few entries were made from Oregon and Wyoming. In size, quality of exhibits, and general interest, the 1936 Show surpassed shows of former years.

L. H. Rochford
State College of Agriculture
Berkeley

COLORADO

1932

Moffet County Agricultural Agent:

Range Sheep Management: A demonstration was arranged with Winder Brothers to compare the use of Suffolk and Hampshire rams in the production of high quality range lambs. The work started in December with 5,800 ewes divided equally as to number, age and quality, one band being bred to Suffolk and one to Hampshire. The bands were wintered in the same manner and under like conditions, and were handled on the lambing grounds as nearly alike as possible.

A field day was held on July 10, arranged by the Colorado Wool Growers, Routt-Moffat Wool Growers, Winder Brothers, and the Extension Service. It was attended by 175 sheepmen from Colorado, Wyoming, and Utah, with members of the staff from both the Colorado and the Wyoming Agricultural Colleges present for the discussions.

The results showed that the Suffolk lambs outweighed the Hampshire 1.54 pounds per head, and the Suffolk ewes produced 9.76 pounds more lambs per ewe.

T. J. Snyder
Craig

Colorado (Continued)

1934

Animal Husbandry Specialist:

Sheep Industry: There are approximately 1,500,000 breeding sheep in the State. The 1934 wool clip reached nearly 10,000,000 pounds. Range producers sent 585,000 lambs to market during the 1934 season.

During the season 1933-1934, 850,000 lambs were fed in Colorado. This represents nearly 30 percent of all the winter-fed lambs in the United States. Most of the lamb feeding is concentrated in the Northern Colorado area. However, demonstration work and the experience of feeders has shown that lamb feeding is practical in other areas of the State, especially the Western Slope, San Luis Valley, Arkansas Valley and some sections of the plains country.

There is at the present time a decided increase in lamb feeding in Eastern Colorado, on the Western slope and in the San Juan Basin.

However, there is need for still closer contact between range producer and feeder associations. Wool marketing, until the past two years, has not been done in an organized way.

A. C. Allen
State College of Agriculture
Fort Collins

Costilla County Agricultural Agent:

Sheep Culling: The sheep industry is the largest livestock industry in Costilla County.

The past four years' culling demonstrations have been held to weed out the small and undesirable sheep from the flocks. This work spread from two producers, until now there are 26 men who practice culling their flocks regularly.

These men have been keeping track of their lamb and fleece weights at selling time and this spring the wool from their entire group averaged 1.3 more wool per head than their average in 1930.

The lambs from these men's flocks too are showing very good results, as the cut backs from this entire group in 1933 averaged 14% less than in 1930.

Thirty-six (36) sheepmen in Costilla County sold 1,469 old ewes to the Government in the drought buying program. Approximately 75 percent of the sheepmen in this county took advantage of the program, and all were well satisfied with the results.

E. W. Martin
San Luis

IDAHO

1932

Animal Husbandry Specialist:

The Range Sheep Industry: Financial problems confronting the range sheep industry were so acute that requests for extension work deviated somewhat from

the old-time program. The failure of a number of banks and inadequate finances back of the industry as a whole retarded the progress being made with the improvement of the outfit. The problem confronting all range sheep operators was to operate on an economical basis. The practice of shed lambing, followed so extensively in Idaho, was abandoned entirely by some outfits and partially by others. This may be illustrated by the reduction in the number of cars of early lambs shipped. In June 1931 there were 1195 cars of Idaho lambs shipped. In June 1932 there were but 636.

Sheep production costs were again assembled by the cost-of-production-committee of the Idaho Wool Growers' Association. The personnel of the committee consists of six range sheepmen and one extension animal husbandman. Each committeeman makes a statement of the yearly operations. Forms are also given to selected members of the wool growers' association, who also turn in their statements, which are then put together, totaled, and averaged. This gives results that are more by the questionnaire form than by actual detailed survey figures. As a comparison of the two methods the range cattle figures are more accurate.

The sheep figures are more complicated because of the fact that there are two separate and distinct methods of range sheep production. In the shed lambing system there is more expense for labor, equipment, and winter feed than in the range lambing system. A report of the cost of the two combined gives a figure that is an average of the two systems.

Recommendations of the different committees are as follows:

1. Shed lambing has been practiced in sections where the winter feed is expensive and the summer range is good. It is profitable only in areas where the winter feed is abundant and cheap.

2. Hay has been fed in too large quantities. Until last winter the ewes acquired wasteful habits, often wasting half the hay. The reports of some members show an allowance of 9 to 10 pounds of hay per ewe per day. This is twice the amount of hay needed.

The general trend of range sheep production is to the old-time system of operating in a way to have a high percentage of loss of cheap ewes rather than to incur heavy expense.

Grazing Season, 1932: Following the hard winter the range feed was good, though the fall was dry. However, the water supply remained ample so that the sheep were held out until the close of the year. The lambs, both fat and feeders, were heavy, thrifty and in good condition.

Estimates of the number of lambs marketed the last eight years when market data have been secured are as follows: 1931-32 were: Summer range, 73.53 percent; fall pastures, 13.77 percent; winter feed lots, 12.70 percent.

Purebred Sheep Industry: A range industry creates a constant demand for good, purebred sheep. To meet this has been established a purebred sheep industry on the Idaho farms. As the range sheep are standardized, the demand is for certain breeds, ranking in the order of: Hampshires, White Faced Cross Breds, of the long wool Rambouillet types, including the so-called Panamas and Columbias; and the Suffolks, Rambouillets, Corriedales, Lincolns, Cotswolds and Romneys.

In the range ewes is always a large proportion, ranging from 50 to 100 percent, of Rambouillet blood. The range type is a large, rugged, smooth, good boned, open faced ewe. In Idaho it is desired that this type Rambouillet

Idaho-1932 (Continued)

be crossed with the long wool breeds of cross bred rams. This gives a ewe that may be rated as a typical Idaho range ewe. The early lambing outfits use black faced rams to produce mutton lambs that are to be sent to market and replaced by white faced ewe lambs bought from the late lambing outfits in Idaho or adjoining states.

Good purebred rams are generally used, so that the purebred industry has been thriving. The standard buck herd for a range band of ewes is 25 head of yearlings, or 50 head of ram lambs.

At the present time range sheep are decreasing in number, with the result that there is a surplus of purebred rams. This resulted in lower 1932 prices, with a surplus left on hand at the close of the year.

The purebred industry exists on so large a scale that much intensive and constructive extension work could be done if time permitted. The main work has been with the ram sale committee of the Idaho Wool Growers, in putting on the State sales. Two are held annually, an early sale for the early lambing sections, and a late sale for the late lambing sections.

E. F. Rinehart
Boise

Franklin County Agricultural Agent:

Sheep: The sheep industry of the county is considerably more important than is the beef cattle industry. In so far as the owners of range sheep are concerned, the work seems to be pretty well organized and rather satisfactorily handled; however, the several thousand head of ewes that are found in farm flocks are very poorly managed and there is opportunity for a great deal of valuable work to be done in this field. A foundation for such improvement has been laid during the past summer.

Grazing: There is justification for farmers to keep a small farm flock of farm sheep due to the abundance of fall and winter feed in normal years; in many cases, however, it is something of a problem to handle these flocks during the three summer months. During the past season 1700 ewes were assembled into two herds and put on leased range. The practice was not wholly satisfactory, since the type of range was not suited altogether to the production of a first-class mutton lamb.

At the present time the agent is working on the problem of securing a forest reserve privilege for a group herd. Attempting to carry group herds on the national forest has proved disappointing in past years; however, the plan submitted by the agent to the forest supervisor seems to overcome many of the objections which have grown out of past experiences, and the plan has been very favorably received by the Forest Service people. The agent has had the assurance from the supervisor that the proposition will be tried during the 1933 season.

Briefly the plan is: A group representing the total number of ewes to be ranged will organize and appoint a committee, the chairman of which will deal with the forest people as an individual owning the herd. Representing the committee, he will be responsible for managing the herd, paying fees, and so forth. No individual will own a grazing right, but the right will belong to the group. If an individual disposes of his sheep he can not barter away a range privilege with them; the association would simply fill in with some other owner acceptable to them. The members must agree to be governed by

Idaho-1932 (Continued)

certain regulations with respect to breed and quality of rams used, time of breeding, and so forth.

Chase Kearl
Preston

1933

Caribou County Agricultural Agent:

Sheep Feeding: Some work has been done in cooperation with E. M. Norris, of the A.C.M., on the use of mono-calcium phosphate for supplying calcium and phosphorus to the ration, with the idea of better mineral balance to the diet, preventing dirt eating, and hastening maturity. The mono-calcium phosphate is mixed with salt in the proportions of 3 : 7 and the livestock have free access to the mixture at all times. One flock of lambs on beet fields which received this mineral mixture seemed to be doing very well.

It is the plan of Budd Weaver, J. E. Lau, H. L. Finch and A. J. Knollin to feed the ewes this mineral mixture through the gestation period in the effort to keep the lambs from having depraved appetites and eating dirt and wool which kills them.

Fred A. Finch
Soda Springs

1934

O'Neill County Agricultural Agent:

Range Sheep: According to the 1930 census, Oneida County had 166 growers who owned 50,299 head of sheep. Approximately 2/3 of these owners own small farm flocks and 1/3 of the number are range sheepmen. Perhaps 75% of the sheep are owned by range outfits. The range sheepmen graze their flocks on the Caribou National Forest and the northern part of the Cache National Forest and public domain of Oneida County. These bands winter in the Malad Valley, Snake River Valley, and on the Nevada and Utah Deserts.

The Caribou Forest Range is in the high mountains and produces good, fat market lambs. The ranges in Oneida County produce good early range but it dries out during the summer, thus producing a high percentage of feeder lambs. This year being exceptionally dry, there was a high percentage of feeder lambs.

When the emergency sheep purchase program became effective in September, the large flocks were on the summer range in Caribou County. A circular letter was sent to all sheepmen explaining the program and encouraging them to list their sheep.

J. C. Ward was appointed appraiser. A quota of 3,000 sheep was granted the County; a schedule was arranged and appraisals were made. All sheep with sufficient flesh for canning were accepted for shipment.

D. E. Warren
Malad

Animal Husbandry Specialist:

Range Sheep: Following an open winter and an early spring came a dry summer and fall, which affected the sheep industry in various ways according

Idaho-1934 (Continued)

to local conditions and lambing time. As the winter was open and spring very early, shed lambing conditions were ideal. In some cases at the time of shed lambing the grass in the sage brush was so good that instead of lambing in sheds the ewes were taken out to lamb on grass. These early lambs, and those that had good forest reserve, were up to average. Where the ranges were dry, many of the lambs were stunted. Range lambing conditions were difficult, mostly because of a scarcity of water.

Early in the year sheep were not a basic commodity, and assignment to the corn-hog program prevented the usual intensive work with the sheep industry. The result was that the continuing projects were kept up, but there was less field work with the sheep than usual.

The cost of production committee completed ten years' work and estimated the average expense of operating a range sheep outfit. In six of the ten years sheep made a profit, while in four the yearly operation showed a loss. On the whole, the range sheep industry is somewhat precarious and speculative. Profits are apt to be very high or losses very heavy, thus differing from the range cattle industry, where profits have not been as high or losses as heavy.

During the ten years that cost of production records have been kept, the relative returns of the two systems, shed lambing and range lambing, have varied greatly. In the early part of the records the early summer prices were so much better than the late summer prices that shed lambing was more profitable. However, the ten-year average shows the two systems to have nearly the same average net return.

The year of 1934 was very unusual. Wintering costs were the lowest on record. Where there was winter range available, it was not necessary to feed hay. Pasture and range were fully utilized and the amount of hay fed in any section was much below the average. Spring was early, but the water supply on the spring range was inadequate, with the result that there was a heavy expense for water. The majority of outfits had to haul water to the ewes on the range. Where this was done the lambs did well, gaining much faster and going on the market in better condition than in the outfits where the ewes and lambs were trailed to water.

Drought Sheep: Intensive work in the sheep industry started on September 16, when orders were received to start buying sheep under the emergency program. Previous to this date but little time had been given to the sheep industry. From this time on to the close of the year (November 30), the sheep buying program required practically full time.

Most of the outfits were short of the number of ewes listed. This was due mostly to heavy losses on the summer range. Generally, an outfit that had listed sheep sold all their sale ewes to the Government. There was a demand from and some sales of old ewes to the farm trade. Late in the buying program the packer demand for old ewes was strong, the packers out-bidding the Government. Sheepmen were encouraged to sell to the private trade, but many would not, preferring to take part in the Government program.

Purebred Sheep: In the range area the breeds and type of the purebreds will depend almost entirely upon the type and breeding of the range sheep. In the Idaho range sheep, Rambouillet blood predominates, though the popular range ewe is a crossbred of the Rambouillet and long wool, or the come-back type. To secure the latter, large numbers of white-faced crossbred rams of the

Idaho-1934 (Continued)

Lincoln-Rambouillet, Cotswold-Rambouillet, or Romney-Rambouillet are used. The demand for rams of this type has been so strong that an effort has been made to develop a breed of the crossbred type, such as the Columbia and Panama.

In Idaho the sheep ranges are generally good. Winter feed is abundant. As a result, a large part of the range industry is conducted to produce black-faced lambs to sell on the market. When black-faced rams are used the general custom is to try to replace the breeding ewes with white-faced crossbred or quarter-blood ewe lambs. Of late years there has been more and more a tendency to use enough white-faced rams to produce sufficient ewe lambs for replacement purposes. The white-faced rams are used later in the season than the black faces. Sheepmen differ as to the method of using the white-faced rams; hence there are two general customs:

1. The black-faced rams are turned into the bands between August 20 and September 30 and kept in for a period of from 30 to 40 days. Late in November or early in December, white-faced rams are turned into the bands. When lambing time comes the ewes that did not lamb early are put in a separate band and sent out to lamb on grass. The wethers are kept as feeder lambs and the ewes held for replacement purposes.

2. A band of the older ewes is made up when the breeding bands are sorted. Black-faced rams are used early with the bands of younger ewes, while white-faced rams are used on the older ewes. The white-faced lambs may be shed-lambed, but usually come a month later than the black-faced lambs, or breeding may be deferred until late in the season and the old ewes lambed on grass.

A few outfits are beginning to make up the bands for producing their ewe lambs by selection of those of certain type and with heavier shearing qualities, but the general tendency is to follow one of the first two systems and cull the ewe lambs closely.

Difficulty in being able to purchase ewe lambs of the desired type and breeding is bringing about more and more of a tendency to produce sufficient ewe lambs to maintain the numbers. This is influencing the demand for white-faced rams. However, the black-faced rams are most generally used. Of the purebred sheep in the State, 76 per cent are of the mutton breeds, while but 24 per cent are of the white-faced breeds. There are approximately twice as many black-faced rams as white-faced rams in use.

Among the long-wool breeds the Lincoln, Cotswold and Romney are all used, each still holding a place. At the present time the Lincoln is most highly regarded, with the Romney second.

The 1934 demand started out strong. Large numbers of yearling ewes were on hand. Most of these were still in the hands of the men who make a practice of buying ewe lambs and selling yearling ewes to the range trade. Because of the shortage of range feed and fall pasture, sheepmen have shown but little tendency to buy replacement ewes. Because of the fact that so many yearling ewes are on hand, it was anticipated that the demand for rams would be strong. As a result the early sales were good. At the time of the early sale held on August 15, the demand was strong and all rams offered sold readily at good prices. By the time the National sale was held at Salt Lake City on September 11 and 12, it was evident that the marketing of old ewes would be exceptionally heavy in an effort to reduce the sheep population to the fall and winter feed.

Idaho-1934 (Continued)

When the late fall sale of the Idaho Association was held in Pocatello on October 13, the ewes were leaving the State at the rate of 4,000 per day. The late lambing districts are in the higher altitudes of the State, where the drought was more serious than in the early lambing districts. Ewe bands were being reduced to such an extent that the majority of outfits had enough old rams on hand for this year's breeding. The result was that the sale was very difficult, with prices low.

E. F. Rinehart
State College of Agriculture
Boise

1935

Bannock County Agricultural Agent:

Sheep Industry: Like the cattle industry the sheep have benefited greatly by the old ewe-buying program conducted during the fall of 1934. By removing this surplus, the sheepman has improved the quality of his bands and consequently is receiving a higher price for mutton and wool. Too many sheepmen had been forced to sell their ewe lambs and hold their old ewes in order to secure money to continue operating. The ewe lambs could be sold but the old ewes had no value.

Sheep and lambs on farms April 1, 1930, numbered 141,217, with 370 farms reporting. Bannock County sells 915,000 pounds of wool each year. The County Agent plans to assist several purebred breeders in securing a few outstanding animals. The large sheep operators buy good registered bucks but no outstanding purebred breeders are now in the county.

A ram sale was held by the Idaho Wool Growers Association at Pocatello on October 5, at which the rams offered brought an average price of 30% higher than last year's sale. The sale which was previously held about the 15th of October was moved ahead this year to insure better weather. The weather was good and a large crowd attended.

A. E. Duke
Pocatello

1936

Caribou County Agricultural Agent:

Sheep Husbandry: Thousands of ewes and lambs are grazed in Caribou County each year. This County affords only spring, summer and fall range; because of the long, hard winters, practically all sheep are fed in the lower country during the winter months. As a rule the class of breeding ewes ranged in the county are of good quality, but in some cases very little is done to select good rams. It is very easy to determine the type and quality of the rams when the lambs are delivered for shipment.

The year 1936 was a very peculiar one for the sheepmen. Generally the wool sold for about 30 cents, some old clips being cleaned up at that figure, which was a good price. The lamb market was rather erratic with a good price

Idaho-1936 (Continued)

for tops and a heavy cut-back as feeders. Hundreds of lambs that would have ordinarily topped the market were sold as feeders or kept for further finishing. According to H. F. Pickren, Station Agent, there were only 425 cars of ewes and lambs shipped from Soda Springs, which was a decrease of about thirty percent from last year.

Purebred Flock Management: Caribou County has several good flocks of purebred Hampshires. All except H. L. Finch's are the results of 4-H Club projects. Each year these men who have a few purebreds are given assistance in disposing of their rams. This year the demand for rams was good and the owners had little trouble in disposing of their lambs.

Selecting Range Lambs: Each year the county agent has numerous requests from different sheepmen to help locate and select range rams. Joe Sianz, a local sheepman, was assisted in selecting 40 range rams at the Pocatello ram sale. Mrs. Dave Dubach of Wayan was also assisted in purchasing some rams.

G. W. Cleveland
Soda Springs

Jefferson County Agricultural Agent:

Sheep: There has been a very marked increase in the sheep enterprise during this season, and especially in the number of sheep that will be shorn and lambs sold during the summer of 1937. During the season of 1936 there were contracted and marketed through the Jefferson County Wool Growers' Association, around 19,000 fleeces. The contract for the 1937 clip has already been made and the association has sold 27,500 fleeces at a contract price of 34¼¢ per pound. This contract has been over-subscribed, and the pool secretary has to date in the neighborhood of 30,000 fleeces, whose owners desire to sell them through this medium. There are very few large growers in this pool and the entire clip is sold as ranch wool with a large number of small growers having flocks of from 5 to 25 sheep.

L. M. Williams
Rigby

MONTANA

1934

Animal Husbandry Specialist:

Sheep Management: Visits to the different sections of the State reveal the various conditions under which flocks must be handled to get the best results. The lambing season in the western part of the State is generally during February and March for the purebred flocks, and March, April and May for the grade range sheep. Regardless of the month the lambs are born, there is always a possibility of a heavy snow storm. Sheepmen have used various means of constructing shelters to take care of their sheep during an emergency. Temporary sheds constructed on a south slope where good drainage is available are probably the best. Canvas-covered sheds are used to a very limited extent in Montana. If these could be located in a sheltered place, it is quite possible

Montana-1934 (Continued)

that they would be more economical than the wooden structures now in use. Sheepmen on the open prairie ranges used the same lambing dates as those in the western part of the State for the purebred sheep, and mostly May lambing for range flocks. Usually very little shelter is provided for the range flocks. Some few individuals use the tepees for the ewe and her new-born lamb. Men who have used these tepees claim that they have saved enough lambs during the first storm to pay for all of their tepees. They use 100 to 150 tepees for a band of sheep. From the sanitary standpoint these will probably be as good equipment as can be secured. The well-constructed large sheep sheds are a source of infection for all kinds of ailments that may strike the lambs when they are first born. It has been reported that one man in Glacier County lost 60 percent of his lamb crop in one season. This, of course, was an extreme case under the old shed-type of lambing.

Emergency Feeding: Winter in Gallatin County: The good sheep man prepares for an emergency by having a supply of concentrates to feed in case of a storm which covers the ground with snow. The concentrates used for these emergencies are cottonseed, linseed and soybean cakes (nut size), dried molasses beet pulp pellets, commercial cubes, and corn. These can all be fed on the snow. The small grains are sometimes used but must be fed in troughs. The feed that is the cheapest is the one that is recommended. One-fourth pound of concentrate per ewe per day is generally enough.

Sheep Branding: The sheep branding demonstrations started in 1933 with sheep branding paste furnished by C. V. Whalin in charge of Livestock, Meat and Wool Division, U. S. D. A., was carried over into 1934. The plan was to run a scouring demonstration to see if this material would scour out under the ordinary scouring methods. The demonstration was a complete success as far as the scouring element was concerned, as all brands were completely scoured out of the wool before the sheep were shorn. This material might be used to a good advantage if the sheep were branded two or three times per year.

I. M. C. Anderson
Bozeman

1935

Animal Husbandry Specialist:

Flushing Ewes: The problem of flushing ewes is one that is before the sheepmen at this time of the year.

Years like the present, when the ranges are exceptionally dry, the range man may have a little difficulty in securing the right kind of range for his ewes during the breeding season. Many sheepmen have found it a good practice to use some concentrate in lieu of the green pasture. As to which is the best concentrate for this purpose is rather doubtful. It is nearly impossible to feed small grains on the range because of the inconvenience and expense of providing feed troughs. A concentrate in the form of cubes, pellets, or sheep-size cottonseed or linseed cake seems to be the most practical.

The amount of concentrate required depends somewhat upon the roughages available. Good results have been attained by feeding one-fourth of a pound of concentrate per ewe daily. Sometimes when the range is a very short and dry one, the concentrate is fed at the rate of three-quarters of a pound daily.

Montana-1935 (Continued)

Some sheepmen have reported shortening their lambing season as much as one week by the use of one-third a pound of barley per ewe daily. This shortening of the lambing seasons makes a more uniform lamb crop, which will demand a higher price when shipped to market.

I. M. C. Anderson
Bozeman

NEW MEXICO

1932

Hidalgo County Agricultural Agent:

Bloodless Castration: A total of 160 kids were castrated with a Russell instrument. Instead of working the kids on the ground, the agent and Mr. Ewing stood in a pit used for collecting mohair, about 3 feet deep, with a plank surface on which to operate, which gave the same effect as having the kids placed on a plank table 3 feet in height. This gave a convenient height for working. The kids were securely held. The instrument was placed over the cord, the end of the lower handle placed on the plank, and the upper handle closed down upon the lower. The instrument was thus held securely, and the work was not tiring on the operators' hands.

After weaning, 30 days later, the kids were turned with another band of nannies,-this during the breeding season. The effectiveness of the castration can be judged by the fact that, out of a total of 160 buck kids operated on, only one was observed to be working during the next month. The agent examined a good share of the kids operated on, and is convinced that the method is highly successful. Comparison of these kids with the control lot, kids from another band belonging to Mr. Ewing, castrated and weaned under the prevailing system of management, but otherwise handled in the same way and on similar range, show a marked difference in size and vigor in favor of the bloodless castration lot.

L. C. Brown
Lordsburg

OREGON

1934

Gilliam County Agricultural Agent:

Sheep Docking: A "Burdizzo" marking tool was obtained from the College at the request of one or two sheepmen and demonstrations of its use made on flocks owned by C. K. Barker and Alex Hardie. Four hundred head of lambs were marked for Barker and 500 for Hardie. Both of these individuals reported that they had no losses whatsoever from marking when they ordinarily would have lost one or two percent of the lambs marked. They both reported, however, that 15 or 20 lambs showed signs of "stagginess" at marketing time, although the buyers did not cut back any of these animals.

Oregon-1934 (Continued)

A similar demonstration on 800 lambs which were docked with the "Burdizzo" and marked in the usual way was made with Ed Russel of Condon. Many of these lambs were several weeks older than they should have been for proper docking and marking. Mr. Russel reported far less than a normal loss due to less bleeding from the docking operation.

R. M. McKennon
Condon

1935

Lake County Agricultural Agent:

Bummer Lambs: That bummer lambs can be grafted on ewes by rubbing kerosene on the ewes lips and under her jaw and also on the lamb to be adopted, has been demonstrated as practical by Ed Bosbyshell, Dry Creek woolgrower, and S. R. Hanson, West Side woolgrower. These men are urging other woolgrowers to give this practice a trial as much time and energy has been lost in the past by sheepmen in fastening fresh pelts from dead lambs on bummers.

Seven hundred sixteen bummer lambs belonging to Roy Chandler, Crooked Creek woolgrower, were doing especially well when checked by the county agent on June 7. After serious loss of approximately 850 head of ewes in a storm the latter part of May, Mr. Chandler requested advice as to how best to care for and feed the remaining bummer lambs. A grain mixture consisting of two sacks of rolled barley, 1 sack of rolled oats and 10 percent oil meal was recommended. Mr. Chandler started immediately to feed the lambs on this mixture and results have proved highly satisfactory.

Victor W. Johnson
Lakeview

UTAH

1933

Beaver County Agricultural Agent:

Sheep Trend: During the past three years the farm sheep business in Beaver County has taken a decided trend toward a concentration of flocks into cooperatives and making a range flock which is run on the public domain most of the year. This system has developed from three major causes:

First, the extreme feed shortage of 1931 made necessary the utilization of all feed raised at home for stock that could not be taken from the farm. Farm sheep offered the best opportunity to utilize the public domain.

Second, liver fluke was making such inroads into some farm flocks, that it was impractical to attempt to hold sheep in some of the badly infested area.

Third, the price of sheep and wool was so low that farmers could not afford to hold them on the farm lands. The farm sheep were forced to the open range either through lease, sale, or cooperative herding.

Disease Control: Assistance was given in the control of lip and leg ulceration affecting two herds of 3,000 sheep on the winter range. The State Livestock inspector was called in on this case since it was a contagious

disease and ten other herds in the vicinity were in danger of contracting the disease. All affected individuals were taken from the range and given treatment until the disease cleared up.

Lew Mar Price
Beaver

1936

Director

Sheep and Wool: The sheep and wool industry in Utah is a major agricultural project. Only 3.1 percent of the area of the State has been plowed so that more than 95 percent of the State is left to yield as grazing land if it yields at all. This land is so positioned in elevation as to give both winter and summer range which offers an ideal position for the sheep and wool industry.

The number of sheep in the State ranges from about 2,500,000 to 2,700,000. All of the sheep are grazed in the summer and a large proportion of them are grazed on the desert area during the winter. The marketing sheep that have gone to the desert and the checking of these same animals when sheared have demonstrated a correlation between winter feed and quality and quantity of wool. Assistance has been given in wool marketing and in clearing the farm pastures and small lower ranges from liver fluke. Part of the industry requires very definite correlation between the sheep and wool industry and the range.

The full effect of the Taylor Grazing law is just being required and inasmuch as the sheep are held in comparatively small fields it affects a large number of people. Attempts are being made in the future for wool grading and even for scouring plants. Sample work on many individual fleeces has been carried on with the promise that in a short time the marketing of the wool may become an important project in this State.

William Peterson
Utah State Agricultural College
Logan

WASHINGTON

1935

Animal Husbandry Specialist

Sheep Grazing: The extension animal husbandman spent one day in Columbia County, Oregon, to observe some 25,000 ewes and lambs which are being pastured in this area by sheepmen who reside in eastern Washington and Oregon. We were fortunate in being able to see a number of bands of sheep running on this cut-over land, and we found that both the ewes and lambs seemed to be doing very well, even though the sheep had not been accustomed to such pasture. The sheep are run in bands of about 1,000 to 1,200 head, much the same as they are in the forest, and are bedded down wherever they happen to be each night rather than using the same bedding ground for several nights. It was interesting to note that the owners had no difficulty with

Washington-1935 (Continued)

predatory animals and no trouble in herding the sheep even in the very roughest part of the range, where the ewes and lambs would climb up and down the breaks and over the logs and stumps without any apparent unusual exertion, and seemed to adapt themselves almost as well as goats would to such an area.

I believe it is of considerable interest to owners of cut-over land in Western Washington to take note of what is happening in this area because there are large areas of cut-over land in Western Washington that have more grass than Columbia County, Oregon. The forage that these ewes and lambs were eating in Columbia County was largely weeds and browse, practically no grass. Fireweed is one of the predominant forages on the range, and the sheep eat these weeds until quite late in the season. They were charging the ranchers $2\frac{1}{2}$ cents per ewe per month for the use of this pasture, no charge being made for the lambs. This is the minimum rate charged by the Forest Service.

Con S. Maddox
State College of Washington
Pullman

WYOMING

1932

Animal Husbandry Specialist

Culling: No more fleece weighing demonstrations will be conducted in the State, since the demonstrations carried on so far have proven definitely that the chute culling method is fully as effective and is very much less expensive. Chute culling demonstrations are being given annually in many counties of the State, either by Dean Hill or by the Extension Animal Husbandman. The common method of checking these demonstrations is to cull the band of sheep some time prior to shearing, marking out from five to ten percent (or whatever percentage the particular flock owner may feel that he wishes to eliminate from his flock) and marking these "light". At shearing time the county agent or animal husbandman weighs a sufficient number of fleeces from the light shearers and from the heavy shearers to establish definite averages. In this way it is possible to determine rather accurately the increase in fleece weight that is to be expected.

J. R. Neale
College of Agriculture
University of Wyoming
Laramie

Campbell County Agricultural Agent:

Sheep Grading: $161.86 is the present that the Wyoming Agricultural Extension Service with the service of Dean J. A. Hill of the Wyoming Agricultural College made to Frank Kane, sheepman in the southern part of Campbell County this season.

In the spring of 1930 Mr. Kane was lined up as one of the cooperative demonstrators working with the Extension Service on the grading of sheep. In the spring of 1930 his sheep sheared $8\frac{1}{4}$ pounds average. The wool was about the average run of wool for Campbell County and brought the average price that

Wyoming-1932 (Continued)

was paid at that time. Since the spring of 1930 Dean Hill, in cooperation with the Extension Service, has been grading the ewe lambs each fall at the Kane ranch, selecting out those that show mixed or half bloodwool and adding the ewes having the best fleeces along with a good constitution to the breeding band. This spring Mr. Kane's sheep averaged 9.65 pounds of wool per fleece and this wool sold for 8½¢ per pound, going direct to a Boston mill. The buyer who selected this wool stated that 70 percent of it was half bloodwool and was certainly a very fine clip. Wool from neighboring bands in the southern part of the county sold at 7 3/8¢; therefore, Mr. Kane received 1 1/8¢ per pound more than did some of his neighboring sheepmen. Since he had 14,388 pounds of wool this premium of 1 1/8¢ per pound brought him $161.86.

Dean J. A. Hill graded lambs at the Kane ranch on September 27 and stated at that time he could certainly see a big improvement in the uniformity of the ewe band and that the improvement in the quality of lambs was almost unbelievable.

G. G. Clark
Gillette

Sheridan County Agricultural Agent:

Wool Improvement: The five-year fleece weighing and grading demonstration entered into with Paul Dodd, Route 2, Sheridan, Wyoming, was completed the past summer. The original project drafted in 1928 had for its goal: To increase the average fleece weight by at least two pounds and the lamb crop by 5 percent during the next five years by careful culling. This has been exceeded by one and one-half pounds, the average fleece weight of the band at the concluding phase of the five-year program being 10.7 pounds.

Standards the first year were adopted following the shearing of a few head to determine range in weights. Subsequent standards were determined largely on the condition and appearance of the band and not in accordance with original intentions of increasing the range one-half pound per year.

Although the sheepmen of Sheridan County have not elected to study this demonstration and make use of its teachings as much as they might have, there is no denying that the cooperator in this project has learned no little in the five years he has cooperated. Every year, except the past one, the band has been chute graded. In this chute grading work, type was considered; this, in connection with the fleece weighing and grading, has resulted in building the Dodd flock up to a uniform band of high-grade Corriedales. The demonstration has proven what every sheepman knows but, in the main, fails to practice, and that is that by the elimination of the light shearers, the average fleece weight of the band can be raised above the average.

Chas. S. Llewellyn
Sheridan, Courthouse

1933

Animal Husbandry Specialist:

Sheep Culling: Following is a copy of a typical letter from one of our cooperators in this range flock grading project:-

"I have finished the five years of culling my sheep under the supervision of Dean Hill of the University of Wyoming and Dick Jay, our county agent

Wyoming-1933 (Continued)

"There has been some work and a bit of trouble to keep the sheep straight, but the extra work was well paid for. I believe every sheep outfit would profit by having this work done to their sheep for the cash profit alone. I save in two ways, shearing bills and range, and to put it in figures (and this time it is not just a pencil profit as is the case so often with one of the deals figured out on paper), I started on this job with sheep that sheared less than eight pounds; in 1931 they beat 12 pounds, and last year, 1932, they went over 11½ pounds; call it a 3½-pound gain per head.

"My shearing bill was 21 cents per head last year and that was the going price around here and the average wool at 8 pounds per head, or about 3¢ per pound. I got 11½ pounds per head, or 2 cents per pound in round figures for shearing, or I saved 1 cent per pound on my wool.

"I have to lease every acre I run over, so that is a question of per-head cost. I have raised my wool clip one-third without increasing my range or the number of sheep and I have done away with that breed of lungers and bare bellies that are a sore eye to any sheep outfit and a loss just before green grass.

"I have lost 176 head of sheep this winter and 107 were lambs and I wintered on the same range with the same amount of hay I have used for 10 years and not one sack of grain or cake (Uncle Sam counted these sheep); no sheds.

"The lambs off these ewes are feeder lambs also, as well as wool sheep, and I have the figures for that. I fed them at Minatare, Nebraska, on corn, pulp, alfalfa hay, and salt, no cake or anything else, and put on over 40 pounds and got shipper top for 11 cars out of 13 and packer top for the other two.

"These sheep are run on the range like any sheep outfit, for profit, not experiment, and I think culling is one of the easiest ways I know for a sheepman to cut the expense account, get rid of the parasites. The dairyman and poultryman have called for years, and I believe I will soon have a bunch that will shear 16 pounds as a result of culling.

"It costs around $3 to run a sheep a year, get a pair of scales and weigh the wool off a bare belly and see what she shears--two or three pounds. You would have to get a dollar and a half a pound for that wool to pay her board, and I bet she hasn't got a lamb. Think it over, 14 pounds off the ewe that pays her board. Get rid of that kind and we would have 30 percent more range."

Corriedale rams selected from the flock of Malcolm Moncrieffe have been a potent factor in the success of the project.

J. R. Neale
State College of Agriculture
University of Wyoming
Laramie

Sheep Diseases

ARIZONA

1936

Animal Husbandry Specialist:

Reduction of Losses: Many requests for assistance relative to the control of parasites and diseases of sheep on farm pastures have been received during the year. These troubles have been found in the native sheep and lambs recently shipped in from Texas and New Mexico and ewes recently driven or shipped in from the ranges of Arizona. In Maricopa County this problem has become of sufficient importance for a tour and meeting in which the station veterinarian and staff of the Animal Husbandry Department participated. There is every evidence that irrigated pastures are becoming a source of contamination to our range sheep. Some of our range sheepmen have already approached the writer regarding the possibility of securing a quarantine against outside sheep. The reply to date has been that it would be a difficult task to prove that such a measure was inaugurated in the interest of health and not with the object of restraint of trade. In some sections there has been a noticeable interest in learning more concerning surgical operations that might be performed on the ranches, such as removal of eyes due to cancerous condition, removal and treatment of tumors, treatment of lump jaw, treatment and care of wombs. Several clinics that have been held by the station veterinarian have brought interested groups of considerable size.

C. U. Pickrell
P. O. Box 785
Phoenix

CALIFORNIA

1936

Butte County Agricultural Agent:

Disease of Sheep: The importance of several sheep diseases is increasing in this area. Many herds have been culled as much as 10% of their young ewes due to a general systemic breakdown, which causes the infected animals to become less and less thrifty over a period of several months until they finally die in a very emaciated condition. A post-mortem quite often shows that they have a general abscessed condition in some or all of the abdominal and thoracic organs. It is contended by some that this is not a disease, but a condition brought about by improper nutrition. Intestinal parasites are continuing to be a problem, especially so with increased use of irrigated pastures, but much of the trouble attributed to parasites has been caused primarily by improper feeding. The most outstanding of these conditions are scours and unthriftiness in many sheep in irrigated pastures, which have in many cases been proved to be caused by digestive disturbances and not by

California-1936 (Continued)

parasites, even though parasites might be present. This, in most instances, can be eliminated by feeding sufficient amount of dry feeds with the succulent green feed.

H. P. Everett
Federal Building
Oroville

IDAHO

1932

Caribou County Agricultural Agent:

Sheep Disease Control: Dr. Swanson of the Bureau of Animal Industry surveyed local pastures for intermediate host of the sheep liver fluke. These snails, or at least the left-hand snails, were found in abundance along the streams adjacent to Soda Springs; however, none were found near the soda water springs. Snails placed in water taken from these springs died in a very short time.

The disease which causes the greatest losses and apparently the hardest to control is navel ill in lambs. A recommendation was made by Dr. Huffman of the Bureau of Animal Industry that all lambs' navels should be disinfected with a solution of iodine and carbolic acid, five to ten percent solution of carbolic acid. This seems to help in some cases, but seems of doubtful value in others. A theory has been advanced by Dr. Huffman and Dr. Swanson that this infection may be entering the sheep through the stump of the tail after docking. The disease has even been found on range lambs where disinfecting is almost impossible.

Each year, generally in March, reports come to the agent of sheep being poisoned. These sheep act in various ways but generally quit eating, sometimes turn blind, and in acute cases will fall over with the head bent back and all four feet together. Death occurs sometimes within a few hours; others may lie in this position for as long as 14 days. Dr. Huffman states that this trouble is caused by an accumulation of roughage in the stomach which cannot be digested. It generally occurs in flocks where no concentrates or supplemental feed have been given. Feeding sheep on lands where plenty of browse is available or where a supplement of grain, such as corn or barley where alfalfa hay is fed, or cottonseed cake or oil meal where native hay is fed, appears to prevent this trouble. The trouble is quite common in Grays Lake, where some of the hay is rather poor.

Fred A. Finch
Soda Springs

MONTANA

1934

Teton County Agricultural Agent:

Worms: Infestation of worms of a new type was first reported to the county agent's office by Al Udin on the 6th of July. Several thousand lambs

Montana-1934 (Continued)

were affected in the southwestern part of the county. The county agent, after a week's observation of conditions, got in touch with the veterinary department of the State College and asked them to send a veterinarian here to work on the case as it evidently was something new and very serious. That department got in touch with the livestock sanitary board and they sent Dr. Fisher to this county. The veterinarians made several different trips to this county trying different treatments and worked experimentally on the Percy Hodgskiss lambs.

The veterinarians called this a new type of worm. There were many hundreds of lambs lost by this epidemic and worse yet, those that did recover were set back so much they could not be marketed.

This is a very serious problem and threatens to ruin the sheepmen unless it can be controlled. The veterinarians seem to feel that they have a treatment now that is fairly satisfactory.

Robert Clarkson
Theo. Fosse
Ft. Benton

NEW MEXICO

1932

Hidalgo County Agricultural Agent:

Disease Control: Five result demonstrations are being conducted on the control of internal parasites of sheep and one on goats, involving a total of 5,000 sheep and 1,300 goats. Results in each case to date have been beneficial in decreasing losses, increasing gains and in improving the general health of the animals. Indications are that an increased lamb and kid crop will result, as well as heavier fleeces, next year. Some increase in these factors was noted this season. In addition to the animals reported above, several other ranchmen are using this treatment for range sheep. The treatment used is drenching with a solution of copper sulphate, (1 pound dissolved in 10 gallons of water), plus nicotine sulphate (Black Leaf 40, 1 ounce to the gallon of copper sulphate solution). Dose used is 3 ounces for grown animals and 2 ounces for lambs or kids.

It is just possible that later additional treatment may be necessary for tape worms, as the infestation becomes greater, but to date the above treatment seems to have been a satisfactory control measure.

It is estimated that financial returns to the owners of these 6300 head of sheep and goats, in decreased losses and in increased gains, weights of fleeces, and percentage of lamb and kid crop, will average 25¢ per head, even at present prices, or a total of $1,575 directly added to returns from these animals from the recommended treatment.

L. C. Brown
Lordsburg

OREGON

1935

Morrow County Agricultural Agent:

Lamb Scours: Preparations were made early in January to carry on work in connection with lamb scours. In past years this trouble has caused the loss of thousands of lambs in Morrow County. Different sheepmen had different ideas as to the real cause of scours but all agreed that cold weather usually brought on the trouble and that during warm, sunny weather there were seldom any evidences of scours. They were all agreed also that the danger period for scours was the first 48 hours of the lamb's life and if they survived these first two days they seldom, if ever, were affected with this particular type of dysentery.

With this information as a basis I made arrangements with Henry Krebs to carry on some work at his lambing camp. Krebs Brothers have in the past had as much or more trouble from scours as any outfit in the county. We separated approximately 100 ewes out of the main drop band and kept them in one corner of the main corral. Through the cooperation of Dr. Haag we obtained some cod liver oil which, according to Dr. Haag, had about two to three times the vitamin content of the cod liver oil that is commonly used for a human medicine. These ewes were fed long hay sprinkled with molasses. Cod liver oil at the rate of one ounce per ewe per week was added to the molasses and poured over the hay fed to this experimental band. This year Krebs had no scours at all in either the lambs from the treated ewes or the untreated ewes; consequently, we learned nothing about the efficacy of this treatment for scours. Mr. Krebs did notice, however, and is quite convinced, that the lambs from the ewes that had the cod liver oil were livelier during the first two or three days than the lambs from the untreated ewes.

1936

Lamb Scours: Extremely cold weather has been accompanied by outbreaks of scours in several lambing camps. Little trouble was experienced with scours in 1935 over the county as a whole except for a short time during the cold, wet weather in March. Although this acidophilus milk was used in a very limited way the results obtained last year were very promising.

Trouble started early this season at Chas. H. Bartholomew's. Acidophilus milk was rushed to the county from Corvallis and the writer stayed at the Bartholomew lambing camp from Friday, February 14 to Wednesday, February 19, treating lambs and obtaining data as to the effectiveness of the acidophilus milk treatment. The first method tried was to give every other lamb 2 ounces of the milk immediately after birth. The treated lambs were kept separate from the untreated lambs and careful records were kept on both lots.

This one treatment was all that was given for the first two days. The results of this single treatment, however, proved disappointing; 28 percent of the untreated lambs died from scours within 48 hours, and 20 percent of the treated lambs died from scours within the same period. This was, to be sure, slightly in favor of the treatment. Beginning with Sunday's drop the treatment of every other lamb at birth was continued, but the treated lambs

Oregon-1936 (Continued)

which developed scours were given additional doses of acidophilus milk. The number of additional doses varied from 2 to 5 depending upon the condition of the lamb. A total of three treatments was the most common number. The results obtained by repeated dosing were very much more satisfactory than those from the single treatment. Death loss from scours at the end of 48 hours in the untreated lot was 30 percent as compared to 8 percent in the treated lot. Further than this, the condition of 31 percent of the untreated lambs still living was such that their outcome was questionable. Some of them lived while others died. The percent of lambs in the treated lot whose condition was questionable was only 11 percent. Using another method of comparison, 31 percent of the untreated lambs at the end of 24 hours were in good condition while 66 percent of the treated lambs were in good condition. In both lots the balance of the lambs died from causes other than scours.

The extremely heavy losses sustained can, in large part, be attributed to the severity of the weather. At no time during these trials was the morning temperature above zero and the temperature ranged from 5 to 8 below during the time when the lambs, which were given several treatments, were dropped. However, the results obtained from repeated doses of acidophilus milk were clear cut.

Krebs Brothers at Cecil had a serious outbreak of scoured lambs and the results were so satisfactory that they put a man on full time who did nothing but feed this milk to the lambs that were scouring. Mr. Krebs kept a record of the lambs treated and followed them through. Shortly after starting the milk treatment, he told me that in two days he had lost only two lambs, neither of which had died of scours, and for several days prior to treatment he had lost from 15 to 25 lambs daily from scours. Apparently, this difference can be charged entirely to the use of acidophilus milk since there was no lessening in the number of sick lambs.

Joseph Bellanger
Heppner

UTAH

1936

Beaver County Agricultural Agent:

Liver-fluke and Drainage: In 1931 Dr. L. E. Swanson, Junior Parasitologist of the Bureau of Animal Industry, United States Department of Agriculture, was detailed to liverfluke-control work in the State. Immediately an educational campaign was started in Beaver County.

In April 1934, two demonstrations showing the effect of copper sulphate on the snail (the intermediate host of liverfluke) were held in Beaver and Greenville. In the same year an F. E. R. A. project was secured for the treatment of the streams, swamps, and sloughs with copper sulphate. A total sum of $8,808.14 was used on the project. An area in the Beaver Valley, of approximately six miles wide and 10 miles long, and an area in the Milford Valley three miles long and a quarter-mile wide was treated with copper sulphate.

Utah-1936 (Continued)

This year a W. P. A. project has been secured to treat the fluke-infested areas. Dr. W. T. Huffman of the Bureau of Animal Industry, United States Department of Agriculture, is supervising the project.

Due to a shortage of available labor, the project was not begun until late fall. As a consequence, the project has not been completed this fall, but will continue again early in the spring. Approximately $7,000 of the $9,000 appropriated has been used for labor, materials, and equipment.

Inasmuch as the treating of streams, swamps, and sloughs is only a temporary control of the snail, making repeated treatments necessary, a drainage program has been inaugurated to secure permanent control where feasible.

The work this fall consisted largely of drainage, as only 500 pounds of copper sulphate were used. Open drains of approximately 2½ feet deep and 14 inches wide were constructed.

A surprisingly large amount of water has been developed from these drains. It has been estimated by the use of rough water measurements that approximately four second-feet of additional water has been developed which is believed to be permanent water.

Valuing water at $3,000 per second foot, the water developed from the project would have a total value of $12,000. In addition to the developing of water and permanently controlling the fluke, it will improve the value of the land approximately $50 an acre .

Acres that were almost impossible for a man to walk across previous to the drainage system, are rapidly losing the free water and are becoming firm and dry. There have been drained 450 acres, at an approximate average cost of $13 per acre.

Colden L. Stoker
Beaver

Section 3 - Miscellaneous Livestock Activities

Drought Relief and Government Purchasing

ARIZONA

1934

Animal Husbandry Specialist:

Cattle Buying: During the last days of May the office of the Extension Director received preliminary plans for the purchase of cattle in the drought-stricken areas of the range sections.

In early June all but three counties of Arizona were designated as drought areas, and these three were included in October.

Heavy movement of cattle continued until the latter part of July, when rains began to fall. This brought almost instant relief, as water was replenished in places where some feed was yet available; also, new feed started within a very few days.

As a result of the government cattle-buying project, the herds of the State have been culled better than ever before. This is exceptionally noticeable in sections thickly populated, where there had existed a large number of small herds.

Another condition which was relieved by the cattle-buying program was one which had resulted, in some sections, from the introduction of dairy blood into the range cattle. This fusion had reached a point where small herds had become nearly useless as grazers, and the hard conditions of the range and lack of feed on farms left them unfit for milk production.

C. U. Pickrell
134 So. Cent.
Phoenix

IDAHO

1935

Bannock County Agricultural Agent:

Drought Relief: At the time the first phase of the cattle buying program was ordered stopped on September 22, 1934, we had approximately 2,500 head listed for sale in the office. Those were largely in the hands of range livestock operators who had not yet gathered their cattle from summer ranges in this and other counties. Approximately one-half of these had been disposed of through other sources before the continued buying was started on December 13. Most of these were disposed of at lower prices than that which the government was offering. Some were even given away, and some were killed with 100 percent loss to the owner. These cattle would have been purchased in fairly large lots which would have materially reduced the cost per head of buying cattle in this county.

Idaho-1935 (Continued)

The total number of cattle purchased under this continued buying was 1,156, of which 202 were condemned.

A. E. Duke
Pocatello

NEVADA

1934

Humboldt and North Lander Counties' Agricultural Agent:

Drought Relief Program: The drought of 1934 was the most devastating in its effects of any drought ever experienced in this county.

Mountain streams and springs were drying up early in the summer, which forced the stock to concentrate near the water holes, with the result that all the feed was soon eaten that could be reached by this limited water supply.

Large amounts of feed were available in other adjacent areas but could not be utilized as no water was to be had for the stock.

A survey was quickly made by the agent, forest ranger, and cooperating committeemen to determine the number of springs that could be developed and to open up the feed areas.

The results of this survey were carried to Reno, to the Nevada Emergency Relief Administration officials who immediately recommended our drought relief program for approval.

The springs opening up the largest amount of feed were developed first, and stock were driven out of the concentrated areas to the new water supplies, and by the middle of the summer the ranges in Humboldt County were in excellent condition due to this increased area available for feeding.

A total of 180 spring development projects have been started and most of them carried to completion. They consisted of cleaning out springs, placing troughs on most of them, and repairing others previously installed.

Paul L. Maloney
Winnemucca

NEW MEXICO

1934

Union County Agricultural Agent:

Emergency Cattle Program: This program was started on June 27. The county was divided into seven districts to facilitate the work and the agent, not being well acquainted with the county, appointed a committee of seven men to recommend committeemen from each district as appraisers. The agent also insisted that the men who were appointed be men of high standing, men who would give a square deal to all stockmen and who would be square with the Government. While some of the men did not give perfect satisfaction, taking them as a whole we had a very good group of committeemen for appraisers.

New Mexico-1934 (Continued)

At the outset this program was intended to be a culling program, but in this county range conditions were so poor, due to extreme drought, that it was a matter of many stockmen having to liquidate. During the first stages of the program the stockmen did try to save all of the best cattle hoping for grass later.

In spite of the fact that we had from six to seven purchasing crews in the field all of the time during July and August, we were from 250 to 500 applications behind all during this period. In the latter part of August when it was seen that there would not be sufficient grass to carry the cattle through the winter, the number of applications for the sale of cattle increased to 725. Many of these, of course, were men who had sold before but who had held on to the best of their herds hoping for grass. Others were men who had held their cows in order to produce calves large enough for the market. On September 19, when the program was first stopped, we still had 365 applications covering around 13,000 head of cattle.

We received additional allotments of money in October, and our reports show that including October 31 we had purchased beef cattle from 1,126 men, purchasing a total of 36,536 cattle of which 10,032 were condemned and 26,504 were accepted for shipment. The total money spent on cattle up to this date was $484,051, of which there was a benefit payment of $184,908 and a purchase payment of $300,143. But contrary to the wishes of the Department of Agriculture and to the Emergency Cattle Agreement, the banks took practically all of the benefit payments as well as the purchase payments from those who owed them.

James G. Wayne
Clayton

OREGON

1934

Crook and Jefferson Counties' Agricultural Agent:

Drought Relief: Water development has been an important phase of the drought relief work in this district. A large part of the range lands could not be utilized because there was no water for stock. Thousands of acres of land had matured grass sufficient to supply thousands of head of cattle and sheep if stock water could be made available. It was found that springs could be developed and wells drilled at much less expense than could stock be moved to available supplies of feed and water. Accordingly, a water development project was started. The S.E.R.A., the Forest Service, the Drought Relief Administration and stockmen cooperated in carrying out the project.

To date there have been more than 125 springs developed and seven deep wells drilled. It is difficult to estimate the total value of this development as its value extends over a long period of time.

It is safe to say that the project has a conservative value of $100,000 to the stockmen of Crook and Jefferson Counties. The water development was made only on public lands, so that no single individual was benefited to the exclusion of others.

W. B. Tucker
Prineville

Oregon (Continued)

1936

Agronomy Specialists

Surplus Hay: When it became apparent that the Middle West was suffering from another drought, surplus hay supplies were listed from all Oregon counties showing a total of about 75,000 tons available, the same as in 1934. Letters were thereupon written to county agents, feed dealers, relief agencies, and others in all of the drought States acquainting them with this situation and asking them of their needs. Oregon county agents were then given names and addresses of feed dealers and county agents who stated that their counties would need imported hay.

County agents were also notified of the counties in the drought States which would have to ship out livestock, and the agents in turn notified their farmers of the areas where they could most likely find cattle or sheep which needed to be moved. Quite a number of Oregon stockmen went to Montana and Wyoming looking for available stock, and as a result brought in 15,000 head of cattle or more. A few sheep were brought in from drought areas and a smaller number of hogs. As a result of these cattle imports together with a dry fall and less pasture, the surplus hay, as this is written, has changed from 75,000 tons to not over 30,000. Hay prices have remained too high all the time for middle western shipping.

E. R. Jackman
Lawrence Jenkins
Oregon State Agricultural College
Corvallis

Livestock Marketing

CALIFORNIA

1936

Madera County Agricultural Agent

Cattle Auction: On May 7, the first beef cattle auction sale was conducted by the California Farm Bureau Marketing Association at Daulton. There were sold 180 head of cattle, mostly lower grades. Prices were very satisfactory, and many cattlemen stated the sales should be a permanent institution. One hundred forty-six persons attended the sale.

The second auction sale was held on May 21 at Friant. There were sold 325 head of cattle for Madera and Fresno Counties' cattlemen. Prices were high enough to encourage future sales. The shrink from time of weighing to receipt of the cattle at destination was excessive and caused strong complaint on the part of the buyers, who vigorously opposed future sales.

There were sold at the third auction sale held at Daulton, June 4, 172 head of cattle. Prices were again satisfactory and plans made for another sale.

From various parts of the county, 96 cattlemen and their wives met at O'Neals, June 6, and organized the Livestock Department of the Farm Bureau, endorsing the cattle auction sales as one of its principal objectives.

California-1936 (Continued)

The fourth auction sale was held at Daulton, June 18, at which time 181 head of cattle were sold. Prices as a whole were unsatisfactory, and the strong opposition of the stockyards, commission houses, independent buyers, dissatisfied customers, and skeptical cattlemen had by this time built up a decided attitude of indifference on the part of the cattlemen. It was, therefore, decided to postpone further sales until fall.

Animal Husbandry Specialist

Livestock and Meats Conferences and Demonstrations: In several counties of the State, home demonstration agents are giving considerable attention to the subject of meats and meat utilization. Each year more county agents have become more interested in the problem of livestock and meat marketing. Because of this situation a series of livestock and meats demonstrations were arranged in cooperation with Miss Hilda Faust, nutrition specialist. These meetings were conducted with the assistance of K. F. Warner, Meats Specialist, U. S. D. A.

L. H. Rochford
College of Agriculture
University of California
Berkeley

COLORADO

1933

Animal Husbandry Specialist

Marketing: Mr. Carpenter has initiated a rather unique method of disposing of his calf crop, both bulls and heifers. In previous years he held an auction sale and disposed of from 100 to 150 head of yearling bulls. This meant much extra work and care, especially through the summer.

At present Mr. Carpenter loads two average bull calves in a trailer, hooks this on his business car and drives to California, Arizona, and New Mexico, or other places where he thinks there might be demand for bulls. He shows the sample and guarantees that he will ship as many out as are needed and that unless they come up to the grade of the samples the buyer does not have to take them. For the past two years he has sold his bulls as calves in this manner and has yet to have a complaint. This year he went back and sold repeat orders to those to whom he sold last year. At the time of writing this report he is sold out of bull calves for this year.

On the heifers that he has to sell he puts a price with or without registration papers and offers them to the buyer. This is a matter of first come--first served, the first buyers, of course, getting the better choice. In this way he has operated throughout the past two years without taking a loss.

A. C. Allen
State College of Agriculture
Fort Collins

NEVADA

1933

Humboldt and Landers Counties' Agricultural Agent:

Marketing Beef Cattle: Each year finds fewer feeder buyers visiting Humboldt County for the purpose of buying livestock. In 1931 it was necessary for the agent to locate a buyer for the Harvey Brothers herd of steers, being the last ones in the district to be sold. In 1932 there was only one buyer that visited the Paradise district during the fall, when 52 head of steers were sold.

These steers were held on the ranches for three months before the owners called on the agent for assistance in the marketing problem. Burdened with the expense of feeding the animals and faced with the prospect, because of no demand from buyers, of having to carry their stock over until next fall when most of it would have been too large to market at satisfactory prices, the ranchers appealed to the agent to locate a market for their stock.

With the cooperation of a number of county agents in California, contact was established with 140 men who ordinarily buy feeder stock. As a result of these letters, which told of the number and classes, also the breeding of our stock, the agent received inquiries by phone, letters, and telegrams asking for further information. Within two weeks all of the cattle for sale in Paradise Valley district and 140 head from the Quinn River were sold.

A total of 860 head were sold, and at one-half cent per pound more than steers were selling for in Grants Pass, Oregon, or Ogden, Utah, and a half cent per pound more than was offered by any other prospects who visited the district during the selling campaign. Only three of the stockmen had paid their taxes up until the time the stock was sold.

Buyers do not like to consider a large number of small lots of steers; these small numbers were pooled and considered as one lot; by separating at the scales this made no inconvenience. The agent had complete charge of the weighing and distributing the money after the checks were cashed for the group. Other details such as ordering feed while en route and having sufficient cars with proper bedding ready were arranged by the agent.

Paul L. Maloney
Winnemucca

NEW MEXICO

1934

Chaves County Agricultural Agent:

Livestock Sale: This has been the most active year under this project that the office has ever experienced, due largely to the adjustment program. During the month of March the annual Livestock Sale and Baby Beef Show was held at the fair grounds in Roswell. This annual event has been developed through cooperation with the Hereford breeders in the eastern part of the State and at this time all of the breeders having registered Herefords for

New Mexico-1934 (Continued)

sale were invited to place them in the auction at that time. There were 100 head of registered stock placed in this auction and all of them sold. After the sale the expense was prorated and each breeder charged the necessary amount per head. This sale seems to be the best means of distributing breeding stock to the various ranchmen, and also enables the breeder to dispose of surplus stock. Before the development of the annual sale most of the buyers went outside the county and State to make their purchases but are now making the greater part from local breeders. The average price received at this sale was $100 per head.

J. R. Thomas
Roswell

IDAHO

1933

Franklin County Agricultural Agent

Lamb Marketing: On August 15, 1933, two cars consisting of 464 head of lambs were cut from the cooperative range herd. There were 22 growers interested in the shipment.

The lambs were weighed in without shrink at 36,786 pounds and weighed to the buyers at 35,570 pounds, resulting in a shrink of 1,215 pounds, or 3.49 percent.

Gross return from shipment		$2,403.81
Costs incident to shipping:		
Freight	$300.00	
Feed and bedding	61.65	
Yardage	37.12	
Selling commission	37.25	
Insurance and inspection	.67	
Cutting, traveling, and loading	40.00	
Total		476.69
Net to Growers		$1,927.12
Average weight per lamb	76.8	
Cost per lb. for shipping	1.34¢	
Average net price per lb.	5.42¢	
Average net price per lamb	$4.33	

Chase Kearl
Preston

1935

Animal Husbandry Specialist

Lamb Marketing: Although the ten-year lamb marketing project undertaken in cooperation with the range sheepmen in 1925 was completed, it was voted that this project should be continued. The wool growers voted that this information was valuable to them in checking results and in planning their methods of operation.

Idaho-1935 (Continued)

In ten years' data of Idaho lambs marketed during the summer from 1925 to 1934, inclusive, the market data and returns were completed on 7,258,765 lambs. The percentage of lambs selling fat varies greatly, ranging from 65.4 to 83.1 percent. The range conditions are beyond control and greatly affect the condition of the lambs.

The average price of the lambs varied from a low price of $5.41 per cwt., received on the market during the summer of 1932, to a high average of $15.02 per cwt., received during the summer of 1928. In the summer of 1928 fat lambs brought the high average of the ten years at $15.54 per cwt., while in the lowest year, 1932, the average price of the fat lambs was only $5.56 per cwt. on the market.

The average expense of marketing is approximately $1.00 per head. The average price of all the lambs on which the marketing data were submitted was $7.31 per head. In 1928 the average price of the Idaho lambs on the market was $11.20 per head. In the low year of 1932 the average price was $4.32 per head.

While there is much country buying by packers, the Idaho Wool Growers as a whole do not favor the practice. Practically all Idaho range lambs are shipped to the open market. While offers are sometimes made to guarantee a higher home price than the sheepmen might secure by shipment, such offers are generally refused on the argument that country buying does not establish prices, and that the shipment of lambs direct may tend to lower market levels. The result is that while many California lambs, as well as those of other States, may be contracted in the country and shipped direct to market by packers, practically all Idaho range lambs are shipped and sold on the open market.

Marketing during the summer of 1935 was somewhat of a gamble. Prices fluctuated greatly, sometimes dropping from $1.50 to $2.00 per cwt. between the time of loading and arrival at the market.

Range conditions were good, with an abundance of feed and water. The market generally was hovering at a point where it was just as apt to rise as to drop. The result was that none of the sheepmen were in a hurry to ship. Naturally, this gave an increased weight to the market lambs. Many lambs that normally would have been marketed in June were held until July, making the average market weight for the July lambs 85 pounds and increasing the general average of the weight of all lambs marketed during the summer.

The low month for fat lambs during the summer was in July, when the average price received was $7.83 per cwt. Fat lambs averaged best during September, averaging $9.01 per cwt. The price of feeder lambs varied from $6.53 in July to $8.41 in September. However, feeder lamb buyers were never more numerous; hence many were sold at home. The first contracts were made in July, when feeder lambs were contracted for fall delivery at from $5.25 to $6.00 per cwt. Prices generally strengthened with September sales at from $7.00 to $7.60, October sales from $8.00 to $8.25, and November sales from $9.00 to $9.10.

E. F. Rinehart
Boise

Idaho-1935 (Continued)

Carter and Fallon Counties' Agricultural Agent:

Wool Marketing: With over a million pounds of wool produced annually in Carter County, and with no attempt ever having been made to pool wool or cooperatively market wool, several visits were made by the extension agent to prominent sheepmen in Carter County to get information concerning the attitude of sheepmen about cooperative wool marketing. Sufficient interest was aroused to warrant the calling of a meeting of sheepmen. At Albion, December 15, 1934, 75 sheepmen from Carter County attended this meeting, and The Carter County Wool Growers' Association was formed.

A marketing agreement was drawn up and all producers asked to sign this agreement. A sales committee of five was selected. On June 15, which was the closing date for pool signers, a total of 41 lots representing 38 producers, signed up 263,665 pounds of wool. The sales committee received bids at 10:00 a. m. June 26, at the Don Pratt Hotel at Belle Fourche, at which time seven wool buyers representing seven different wool dealers, submitted bids. The bids ranged from 21¢ to the high bid of 26-1/8¢, the high bid being made by Roy Hanson, representing Winslow & Adams. This bid was accepted by the sales committee.

Due to the fact that Roy Hanson headquartered at Belle Fourche during the wool buying season, had his own books, knew many of the growers personally, and most of the wool was already stored at Belle Fourche, he agreed to settle individually with each producer, thus saving the sales committee of the association extra time and expense. Mr. Hanson's settlements were made at the time of delivery. With this method of settlement no deductions were made from the sale price, and growers received the full 26-1/8¢.

The sales committee, making a conservative estimate, states that the pool brought to producers 2½¢ a pound additional for all wool in the pool, as well as a higher price for those selling individually after the pool sale. The estimate of 2½¢ per pound gained from cooperative marketing enriched cooperators $6,591.52 over what would have been received without the pool

Keith Sime
Baker

OREGON

1932

Morrow County Agricultural Agent:

Eat More Lamb Campaign: The writer assisted the Morrow County Wool Growers' Auxiliary in putting over their "Eat More Lamb" campaign by helping them arrange for and putting on a banquet at which various lamb cuts and dishes were featured. A circular letter was prepared and sent to all people in the county which contained lamb recipes. Lambs were bought direct from the farmers, slaughtered, and sold at cost to housewives through the McMarr Store. A slaughtering and cutting demonstration was put on in Heppner and at Boardman by H. A. Lindgren, extension livestock fieldman to show those people who had had difficulty in slaughtering sheep the proper procedure to follow when killing and dressing out sheep. Mr. Lindgren also demonstrated how the carcass of the sheep should be boned out and the various cuts cured by the various pickling and smoking methods.

WASHINGTON

1935

Seattle Meat Grading Ordinance: The Extension Animal Husbandman visited the Seattle Stockyards where observations were made of the various grades of cattle being sold on the market. Four lots of steers and three lots of cows were observed. The carcasses from these cattle were observed after they were killed and graded and a complete report was obtained of the grading, dressing, percentage, and so forth. The purpose was to give the Extension animal husbandman definite information as to just how differently priced cattle were graded so that this information could be passed on to livestock men of the State of Washington. In addition to this, other contacts were made with meat wholesalers, livestock commission men, meat retailers, restaurant and hotel men and consumers. These various groups were contacted in an effort to find out their opinion relative to the advantages and/or disadvantages of the meat grading ordinance in the City of Seattle. The following is a brief outline of the grading of the various lots of cattle observed at the stockyards:

	Number	Price	Grade
STEERS:	22	$9.25	H. Good
	26	8.00	H. Medium
	15	7.00	Common to medium
	2	6.00	Cutter
COWS:	6	6.00	Medium
	5	6.00	Medium
	4	4.00	Cutter

Commission Men: These gentlemen had no particular objection to the grading ordinance except that the meat graders will not pass anything as a heifer carcass that has ever had a calf.

Meat Wholesalers: These gentlemen made the same criticism as the commission men and some of them felt that the ordinance made it more difficult to move the local grades of meat.

Meat Shops: The proprietors of meat shops were very conservative in their statements. Generally they all object to the variation within a grade.

Hotel and Restaurant Men: The hotel and restaurant men think the ordinance does not make any difference to them.

Consumers: The 31 housewives in the different parts of the city who were asked about the ordinance, except in the case of one lady, said that they did not know there was such an ordinance in existence. However, these ladies who were not aware of the existence of the ordinance were quite interested to know about it and they stated they would watch for the grade on the meat they got in the future.

Con S. Maddox
State College of Agriculture
Pullman

Wool uses

UTAH

1932

Sevier County Agricultural Agent:

Wool Uses: On account of the low price for wool prevailing this year, sheepmen and farmers have been encouraged to exchange wool for blankets. These plans have gone forward with the Knight Woolen Mills at Provo, Utah Woolen Mills at Salt Lake City, and the Baron Woolen Mills at Brigham City. This project has been extremely interesting and timely. Cooperators in it have been more than pleased with the results. This plan resulted in the utilization of 2,574 pounds of wool, from which 361 blankets were made.

S. R. Boswell
Richfield

Uintah County Agricultural Agent:

Wool Use: Just before shearing time a great many sheep died on the range through exposure, disease, and poison, and several people went out and picked this wool from the dead sheep. This was used in having blankets and quilts made.

This office obtained from Mr. Esplin mimeographed sheets explaining the scouring of wool. These sheets have been furnished free to anyone who desired them, and as a result hundreds of pounds of wool have been scoured at home, and quilts are now being made on many farms of this county. The relief society has cooperated with this office in putting over this program.

E. Peterson
Vernal

Organizations

ARIZONA

1935

Gila County Agent:

Relationships: The Cattle Growers of Gila County have a very active Association, which is doing a lot for the cattlemen of the county. It is responsible for extension work being installed in Gila County.

A calf and cash donation plan was worked out by the association to raise money for the American National Livestock Association. The plan was for all the members possible who had 200 or more cattle to give a calf, and those with less than this number of cattle to give five cents per head, with a $2.00 minimum. Twenty-two calves were gathered at the Bixby Ranch and auctioned off. Mr. C. U. Pickrell, the Livestock Specialist for the Extension Service, acted as Auctioneer. The calves were sold for $23.03 per head.

Arizona-1935 (Continued)

A Weight Guessing Contest was held by the Extension Service in connection with the Calf Sale.

Nearly $800 was raised by the Association to be turned over to the National Association.

A cattle-for-sale listing bulletin was worked up by the agent and the association for the fall sales. About 200 copies of this listing were sent to cattle buyers in all parts of the west.

S. W. Armstrong
Willcox, Cochise County

IDAHO

1935

Caribou County Agricultural Agent:

Grazing Associations: There are eight cattle grazing associations that operate in Caribou County. Every association is a well organized group of cattlemen who are all interested in the production of quality beef; thus each association has strict rules governing the quality of bulls that run on the association range.

Foremost among these associations is the Dry Valley Association. Each year this association selects three disinterested judges who inspect each bull to be put on the range. Any bull of inferior quality is rejected and must be replaced with a better one. This year 60 bulls were inspected on 14 farms; 16 were rejected as being undesirable.

The Dry Valley Association has been very careful in the grazing of its range. Until the last two years there has been a large area that was not accessible to grazing after the snow was all gone in the spring; consequently, part of their range was over-grazed and a large part was grazed only in early spring. This was due to lack of water.

With the assistance of the Forest Service the Dry Valley Association dug two wells, one at the upper end of the Valley and one at the lower end. Pumps, gasoline engines, storage tanks and troughs were installed at each well. This opened up a vast country to both cattle and sheep for all the grazing season. At present a man is hired to take care of the pumping, but it is planned to install windmills with automatic controls. This will make a continuous supply of water for thousands of cattle and sheep.

G. W. Cleveland
Soda Springs

MONTANA

1932

Toole County Agricultural Agent:

Livestock Association: The Sweet Grass-Marias Livestock Association was formed by the Extension agent and a group of livestock men for protection

Montana-1932 (Continued)

against rustling. The association has been very active this year holding meetings and keeping rewards posted to combat rustling. Rustling, very prevalent two years ago; seems to have died out in this section, probably partly due to the activities of this association.

The members of this association have pledged their assistance, both morally and financially, to the county attorney in prosecuting any cases of rustling from its members.

The association meets quarterly, or subject to call of the president. Its membership has increased this year to 32 members. To be eligible to this association one must be a livestock man residing in the Sweet Grass hills or along the Marias River, must pass a rigid character analysis by the membership committee, and then be passed at a general meeting. The membership is more or less secret.

There is a standing reward of $225 for the arrest and conviction of any person, or persons, rustling stock from a member of this association.

M. H. Ostrem
Shelby

NEW MEXICO

1935

Grant County Agricultural Agent:

Livestock Association: For the purpose of cooperating with the different Federal agencies, and possibly expediting the work as one of its objects, the Grant County Livestock Association was formed. The preliminary meeting was held February 16, to which 20 of the leading cattlemen of the county were invited. Dr. W. L. Black, extension husbandman, also attended. At this meeting it was decided that rather than have a Board of Directors it would be more advisable to have the officers appoint committees to handle different lines of work. These were: Close cooperation with the different Federal agencies that were then in the field checking on methods of erosion control, with officials of the Taylor Grazing Act; to indorse and support the feeding of club calves through boys' and girls' club work; the collective buying of salt and cottonseed cake; the listing of all cattle for sale and probable weight and condition, and the purchasing of only registered range bulls, this to be done by the members themselves rather than to depend on bull sellers who annually ship in carload after carloadof inferior animals.

To date we have tentative orders for two cars of cottonseed cake. We have shipped in three cars of salt weighing 135,000 pounds, the saving on the salt for members being approximately $900. We have orders listed for 138,000 pounds of salt to be purchased shortly after the first of the year.

We had listed for sale in the county cattle of all ages totaling 23,000 head. Arrangements have already been completed to bring together five small ranchmen in the purchase of a carload of polled bulls. Four small cattle owners were advised where they could get four young herd bulls locally. Two herd bulls were brought into the county by association members during the past month that cost their owners $750 each.

New Mexico-1935 (Continued)

Approximately 20 other cattlemen have indicated that they want to buy 300 head of registered range bulls this year. These bulls will be bought by the ranchers themselves. The county agent's office will arrange to get smaller ranchers who need only a few head each to pool their orders and either have one of their number purchase them or all go together in a car and make the purchase that way.

4-H Club Work

CALIFORNIA

1936

Animal Husbandry Specialist:

4-H Bull Club: In Lassen County a 4-H bull club was organized during the year, wherein the club members purchased, during the fall of 1935, 14 purebred bull Hereford calves with the assistance of the county agent and the Extension specialist. The club members fed these young bulls for development and sold them as range bulls to local stockmen in the fall of 1936. The project was successful and in the early fall of 1936 the club purchased 18 more purebred bull calves to be used in their 1937 project. A similar program was started in the fall of this year through the vocational agriculture class of the McArthur High School in Shasta County. The instructor, a practical stockman, was delegated to purchase from Montana a carload of purebred Hereford bulls. Part of these bulls are retained as a future farmers' project and are to be sold as range bulls to stockmen next fall. The remainder of the carload went directly to stockmen.

L. H. Rochford
College of Agriculture
University of California
Berkeley

COLORADO

1935

Moffat County Agricultural Agent:

4-H Beef Clubs: This project has been carried for six years and has been organized this year with 21 members enrolled.

The Club was very successful this year in that most of the members have disposed of a young bull or two which has helped to pay for some of the calves they purchased a few years ago.

We also find that a number of the parents are buying bull calves from the members and putting them with their range herds, as these young bulls are of excellent type and quality. As a result of this project we find a general improvement in the livestock and in the interest that many stockmen are taking over the county in the use of better sires.

T. J. Snyder
Craig

MONTANA

1936

Cascade County Agricultural Agent:

4-H Breeding Beef Cattle and Range Management: This is a brand new 4-H Club project for this county and offers an opportunity for boys living in the range countries to belong to a 4-H Club and participate in activities through the ownership of beef breeding cattle.

The range management phase of the project anticipates that the boys will learn approved methods of range management through identification of forage and range plants, as well as to identify poisonous plants which may cause livestock losses.

Two clubs were organized in this project the past year, one at Stockett under the leadership of Mike Swartz and one at Tiger Butte under the leadership of C. A. Bond. Although 5 boys signed up under this project in the Tiger Butte Club, only three did any work on their projects.

Because of the nature of this project, it is not possible for club members to exhibit their products at the fair and there is also difficulty in working up enthusiasm for judging and demonstration contests. Financial records are also not shown since the project does not lend itself to giving the club member a financial rating. Obviously, therefore, the amount of good received by club members in this project is dependent entirely upon the ingenuity and leadership of the leaders in giving the boys training in plant identification and range management; and at the end of two or three years boys who start with a single heifer calf will have a small start in the livestock business.

D. P. Thurber
Great Falls

NEVADA

1932

Humboldt and Lander Counties' Agricultural Agent:

4-H Range Club: The boys took range management as their project, and fulfilled the requirements in a satisfactory manner. A spring and summer range was visited by each member, where range problems were discussed by the local forest ranger. The members were required to identify all the trees and shrubs growing in their community; to tie the common knots that are used on the ranches; to make a bulletin case for the purpose of filing material for future reference. The boys took active part in all the social and recreational activities of the club.

Ninety-two percent of all the members starting the club work carried it to completion.

Paul L. Maloney
Winnemucca

WASHINGTON

1933

Animal Husbandry Specialist:

4-H Club Work: Well-bred range beef calves were selected in the fall and distributed to 4-H Club boys in eastern Washington in counties in which there is a good opportunity for developing a beef cattle enterprise in connection with grain and diversified farms. This project was supervised in detail by county agents, club agents, and by the livestock specialist. At the termination of the project these calves were shown and sold at auction at the Inland Empire Fat Stock Show at Spokane.

Hector McDonald
State College of Washington
Pullman

Demonstrations

COLORADO

1936

Animal Husbandry Specialist:

Demonstrations: Results from past years have shown us that a greater number of stockmen and feeders can be reached through district demonstrations than from any other method.

Reasons why it seems desirable to center activities around demonstrations are:

1. In the typical livestock areas are located active stockgrowers' associations. In most instances the membership of these associations is made up of the leading, most successful and most influential stockmen.

2. These associations are willing and glad to cooperate with us. They have repeatedly asked for definite demonstration work located on ranches and farms of their respective sections. They are glad to sponsor field meetings at these ranches or farms where definite results are seen. Experience during the past two years has shown that the stockmen will take an active part in these demonstration field days. They feel that the demonstrations are a part of the activities of the association, which they are. At the demonstration field days, time is given to the preparation of a program and one or more outside speakers are brought in.

3. Stockmen are ready and willing to furnish livestock and equipment to conduct demonstrations without expense to the extension service, except through the services of the extension workers.

Finally, the key demonstrations seem to be the most effective ways of getting results with stockmen and the most apparent way of reaching the industry in general.

A. C. Allen
State College of Agriculture
Fort Collins

Cost of Production

CALIFORNIA

1936

Animal Husbandry Specialist:

Cost of Production Studies: In January 1935, studies on cost of producing beef were started under the direction of L. W. Fluharty, farm management specialist. These studies were continued through the year 1936. To date they have been confined to the south coast and northeast regions of the State. In these two areas 60 stockmen have cooperated during this year. The ranch records involve about 30,000 cattle. The cooperators are located in Alameda, Contra Costa, San Benito, Monterey, Santa Barbara, Ventura, Tehama, Shasta, Lassen, Modoc, and Siskiyou Counties. The cost studies are closely related to the breeding herd management program and to the entire beef cattle Extension program.

Monterey County Agricultural Agent:

The Extension specialist in animal husbandry has cooperated on the project and has used the study to point out changes that can be made to promote more efficient ranch management. Stockmen have been very much interested in this project. There is a strong demand for it to be extended into the Sacramento and San Joaquin valleys.

L. H. Rochford
State College of Agriculture
Berkeley

County Planning

IDAHO

1936

Bannock County Agricultural Agent:

Agricultural Economics: The county agent visited the members of the Farm Planning Board and urged them to attend the first meeting scheduled for Lava, February 6. A final meeting of the Planning Board was held in Pocatello March 14. Final recommendations were drawn up and mailed to the State director. The recommendations for Bannock County are as follows:

Livestock Committee: As the range problem is unsettled, with many ranges over-grazed, we recommend that all public land be put under control and improved by water development, re-seeding, deferred grazing and any other method that might restore depleted ranges. It is recommended that permanent range rights be assigned to adjoining ranches with commensurate property. Transitory stock should

Idaho-1936 (Continued)

be confined to definite stock trails that lead from and to winter quarters and summer range, with all ranges assigned to the use of stockmen who have established and developed commensurate property. If protected range rights are not assigned, many ranches of value as stock ranches will become marginal.

Cattle: Cattle numbers are about normal for the carrying capacity of the ranches and ranges; hence any material increase seems undesirable. A future cattle program should be along the lines of improvement of the types of cattle and of management and marketing methods rather than any program that would increase cattle numbers. We recommend that the Idaho purebred bull law be strengthened with provisions enacted for strict enforcement. Migratory cattle should be excluded from Bannock County ranges, reserving some for farmers with commensurate property.

Sheep: As there are two classes of sheep now utilizing the range, we recommend the protection of the commensurate property of the sheep outfits owned by bona fide Bannock County citizens, with definite ranges assigned to the established sheep ranches. Migratory stock should be excluded from Bannock County ranges and transitory confined to stock trails.

Since we realize that there is a large amount of the present cropped area in Bannock County which should not be cultivated due to lack of fertility and erosion being present, we recommend that this sub-marginal area be purchased by the Forest Service and be seeded down to grazing grasses.

We recommend that grazing on the public domain be placed under the supervision of a Federal agency.

We recommend the cooperation of the county, farmer and the government in destroying all noxious weeds. It is desired that any and all farmers having a weed problem get in touch with the county agent for information concerning the program.

A. E. Duke
Pocatello

NEW MEXICO

1936

Colfax County Agricultural Agent:

County Planning: Through the analysis made of the conditions of the county by the planning committees a more balanced program was formulated which involves the type of work that they feel the extension service should emphasize in the county. A group of ten of the outstanding farmers and ranchmen was asked to attend the meeting for the primary organization. These men were assisted by about 20 men in the different communities, selected from those who were especially interested in certain crops and livestock.

For range livestock it was recommended:

(1) That watering places should be provided for range cattle at intervals of not more than two miles, and these be made by artificial dams and the erection of windmills.

(2) That special effort be made in improving the dairy cattle of the county, by the organizing of bull circles and the strict culling of cows on a basis of economical production.

New Mexico-1936 (Continued)

(3) That the sheepmen improve their sires and try to eliminate the wrinkly type of animal from their herds.
(4) That rotation grazing be practised, especially for its value in re-seeding the grass lands and in preventing over-grazing. It was also recommended that the range be stocked in the proportion of one beef animal to 30 acres, and sheep in the proportion of one animal to eight acres.
(5) That all stockmen should provide salt and mineral feeds for their livestock, calcium and phosphate being the two minerals lacking in most grasses. Mono Calcium Phosphate is a mineral feed best suited to this section.
(6) That erosion control and revegetation work were among the biggest problems of the rancher; and with greater use of run-off by dams in gullies, cow-paths, roads, and by terracing work where practical, to divert the water onto the grass land.
(7) That as many trees as possible be planted along creeks where there is sufficient water for their growth, and if necessary, fence these patches in order to protect them from the stock.
(8) That the cockle burr and loco weeds are the most serious menaces to the stock of any poisonous weeds, and that efforts should be made to control these two plants.

Zenas R. Brush
Raton

Extension Service Circular 281 January 1938

Summary of Range-Livestock and Range-Management Extension Work in the Eleven Western States 1932 to 1936, Inclusive

Part I, Sections 2 and 3

This circular is stapled in three separate sections as follows:

(1) *Part I, Section 1.*
(2) *Part I, Sections 2 and 3.*
(3) *Part II, Sections 1 and 2.*

UNITED STATES DEPARTMENT OF AGRICULTURE
Extension Service.....C. W. WARBURTON *Director*
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Washington, D. C.

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Cooperative Extension Work in Agriculture and Home Economics

Extension Service Circular 281 January 1938

SUMMARY OF

RANGE-LIVESTOCK AND RANGE-MANAGEMENT EXTENSION WORK IN THE ELEVEN WESTERN STATES - 1932 TO 1936, INCLUSIVE

PART II. - RANGE MANAGEMENT

Section 1. - Range, Pasture, and Meadow Practices

CALIFORNIA

1934

Mendocino County Agricultural Agent:

Dry Land Pastures and Range Lands: The brush-burning experiment conducted on Burtt Elliott's ranch, Comptche, in cooperation with Professor A. W. Sampson and this office, was expanded during the past year.

1. Acreage: There are 520 acres in the property, five of which were open grass land, the balance being thick brush, which had to be cleared. Approximately 100 acres a year were slashed during successive summers and burne during September and October. The cost of slashing was approximately $7.50 per acre. The reason for chopping the brush was to enable it to be burned clean, leaving no snags through which grazing is made difficult, especially in the denser brush areas.

2. Seeding: The fall is the best time to sow grass following burning because the fall and winter rains give the grass a good start, thereby enabling it to become established before the dry summer. A mixture which has proved satisfactory is 3 pounds red top, 20 pounds perennial rye, 20 pour orchard grass, 1 pound mustard, and 5 pounds mesquite, per acre. In addition to this mixture, separate seedings of Harding grass have been made under more favorable situations. It has been found that the larger seeded varieties suc as rye grass, mustard, and orchard grass should be sown in the ashes, while the smaller ones like red top should be sown after the first rains. No seed bed preparation is necessary in either case.

3. Grazing: The practice of not grazing until the grass goes to seed the first year and not over-grazing thereafter has enabled the cultivated grasses to be maintained. This has been accomplished by small enclosures, thereby enabling the changing of the stock to fresh pastures without over-gra ing.

California-1934 (Continued)

Prior to the brush-burning program, the ranch had no carrying capacity, as the dense brush (Blue Blossom) afforded no feed for stock. After clearing and seeding, the same land is running approximately one head of sheep per acre the year round. Since this practice was inaugurated, many springs which had gone dry are now flowing the year round and furnishing the entire water needs of the stock.

C. S. Myszka
R. D. Foote
Ukiah Court House

COLORADO

1934

Costilla County Agricultural Agent:

Range Reseeding: In Costilla County the range and high mountains close to the fertile valleys provide a very good set-up for raising sheep. A large amount of the land in the county is devoted to growing hay and grass to be pastured by sheep flocks. The pastures and meadows are native grasses that were growing wild in the county when the inhabitants moved into it.

The continuous grazing of these meadows by sheep flocks has killed out most of the more palatable grasses until all that is left is the coarse grass and many times poisonous weeds that are not as a rule eaten by the sheep. This condition gradually grew worse until the sheepmen made the request that some work be done on reseeding these pastures.

Several years ago some native grasses were planted at the head of small creeks and in meadows. These grasses have reseeded and are brought down the creeks into the meadows. The amount of these grasses appearing on the ditches and meadows seems to show that this project has been successful.

Mr. Jose Labato, in a report to the Wool Growers, stated that the meadow he had seeded to tame grasses cut 3/4 more tons per acre than the native meadow and the hay was much more palatable than the other hay. Several more sheepmen purchased grass seed in order to start this improvement on their places in 1934.

E. W. Martin
San Luis

1935

Archuleta County Agricultural Agent:

Range Reseeding: At the meeting of the Farm and Home Council Joseph Hersch brought out the fact that many of the ranges were running down and that something should be done to increase the carrying capacity. Mr. Hersch was made chairman of the range improvement project and had a demonstration started with crested wheat grass. Some was sown on fall-plowed ground to be used as irrigated pasture; some on the side of a hill to determine whether or not it could be used for range reseeding; and some in rows to be used for seed production.

Colorado-1935 (Continued)

During eight years of trial plantings made in different parts of the State it has proved to be valuable for reseeding abandoned farmland, pasture for spring and fall grazing, as well as for forage improvement on overgrazed land.

It has withstood drought and exposure to the full force of cold winter winds at Virginia Dale, 7000 feet above sea level, in Larimer County, and Briggsdale, 5000 feet elevation, in Weld County. Stands also have been secured at Calhan, El Paso County, Montrose, Craig, and Fort Collins.

Characteristics which make the crested wheat grass desirable for dryland pastures in Colorado are endurance to low temperatures, resistance to drought, comparative ease of establishment, high palatability and vigorous seed production.

Donald L. McMillen
Pagosa Springs

IDAHO

1935

Animal Husbandry Specialist

Range Management: By general, wide-spread request, work was done with the State cattle committees in the reorganization of the Idaho Cattle and Horse Growers' Association and in properly organizing so as to have competent and qualified representation on the advisory boards for administering the regulated grazing on the public domain lands now going under control. In connection with the cattle problems on the Taylor Grazing Act, four State meetings and three district meetings were held.

The allotment of grazing privileges in Idaho is a serious problem, mostly for the reason that the irrigated and improved farms of the State now produce winter feed for far more livestock than the summer ranges can carry. There are ten times as much carrying capacity of the farms as of the range. The range is now utilized mostly by cattle from mountain and interior ranches, which are far from the railroad and mostly at such an altitude that hay is the only sure crop. When range rights are available, the ranch can be successfully operated with cattle.

In some sections, especially the dairy regions, there is a feeling that the range rights should be divided among all farms. Those who are of this belief maintain that the range rights should be equally divided among all ranches of the State. Instead of having ranches in the interior, where sufficient cattle may be kept to provide a living for a family, they believe that the use of the range should be given over to community herds made up of dairy steers or heifers from the irrigated farms. This is more theoretical than practical. Cattle of dairy breeding have not the range instinct and are not good rustlers. The general tendency of cattle of this breeding is to remain close to the water holes, completely destroying the nearby grass and not utilizing the more remote and inaccessible portions of the range. The result is injurious both to cattle and to the range. Where this system is followed the dairy heifers come back so stunted that their future development into profitable cows is impossible. However, in spite of the fact that the community range herd has been found impractical, some lawyers and professional organizers, among whom are a few theoretical and impractical county agents, formed a strong organization of farmers on the promise of securing

Idaho-1935 (Continued)

the range now being utilized by the permanent old-time outfits. This movement was most untimely and unfortunate. The old strife for grass and range was renewed. Friendship between rangeman and farmer was destroyed. Much necessary extra work had to be done by the range users to offset the promises of men who took it upon themselves to distribute and parcel out the range for the Forest Service and the administration of the Taylor Grazing Act.

Only one section, the western third of Idaho, was made into a permanent grazing district. Preliminary to the election of June 15, a district meeting of 131 cattlemen was held to outline and select proper representatives to the advisory board. Seven out of eight precincts were carried by the range cattlemen, mostly with the aid of farmers who had attended the farm organization meetings held by county agent Hale and knew from their experience that the further reduction of range rights was detrimental to both farm and ranch in destroying the range, removing the market for the surplus hay, and reducing the usual supply of feeder cattle and lambs.

Later elections held were tentative, but the results were much the same, mostly for the reason that range cattlemen received many votes from farmers who do not approve of the plan of distributing the range among all applicants.

E. F. Rinehart
Boise

1936

Idaho County Agricultural Agent:

Range Conservation Program: The Range Conservation Program offered to farmers and stockmen by the Western Division late in 1936, has met with considerable favor in Idaho County. On the closing date of December 1, 293 applications covering 375,000 acres of range land had been filed. The estimated revenue to the stockmen of the county from participation in the 1936 program will reach $25,000. Water development and fence construction are the most common practices employed.

Over 30 range cattlemen and sheepmen attended a conference at the county agent's office Friday, July 10, to discuss the proposed National Range Conservation Program. A. R. Shumway, a representative of the Washington office of the Agricultural Adjustment Administration, outlined the general principles of the proposed plan. The Idaho County stockmen at the meeting recommended that the following seven points be included in the new program:

1. Reseeding of range lands.
2. Improvement of water holes.
3. Rotated grazing of ranges.
4. Weed control on range lands.
5. Rodent control on range lands.
6. Provide for supplemental feeds through the purchase of hay; rental of additional pasture.
7. Voluntary reduction in the number of stock.

During the first two weeks of August a detailed survey of the ranges of Idaho County was made by a crew of men from the University of Idaho. This survey included a classification of a forage on the various ranges of the county and a tabulation of the livestock practices followed by stockmen. A

Idaho-1936 (Continued)

committee was appointed at the meeting Friday to cooperate in making this survey. Those in attendance at the meeting were unanimously in favor of a program such as the one proposed. This program would be applicable to all public and privately owned pasture land in the county outside of the National forest. Benefit payments will be made to those who participate in the proposed program by adopting one of the seven practices recommended.

The final approved Range Conservation program was explained to stockmen of the county at a county-wide meeting held at Grangeville, October 27, with an attendance of 75. Over 100,000 acres of range land were signed up at this first meeting, and as information gradually spread concerning the provisions of the program, additional applications were taken at the county agent's office. It was found necessary to add two members to the County Agricultural Conservation Committee to effectively handle the range conservation program.

This program fits into the operations of the large range cattle and sheep outfits very well and it is hoped that it will be further developed to give some assistance to farmers and stockmen who have small acreages of pasture land in connection with crop land.

W. E. Rawlings
Grangeville

MONTANA

1932

Extension Livestock Specialist:

Range Management: A visit was made to the Gravelly Range to study range management as conducted by the National Forest Service. These high altitude ranges were divided according to natural barriers and vegetation, the higher altitudes being used for sheep grazing and the lower altitudes for cattle grazing. The excellent growth of grass speaks well for the management plan adopted by the Forest Service. The cattle were entered on the lower ranges and gradually moved through the drift fences to the seasonal pastures as the season advanced. The drift fences are constructed along natural dividing lines such as rivers and rough canyons. The range is divided into three general divisions, the earlyspring range being on the lower Ruby Creek, the early summer range follows next, and the late summer is on the highest part of the range. By these divisions and the proper distribution of salt, all the range is utilized with no part being over-grazed. Late in the fall the cattle are allowed to drift back down the creek in reverse order from what they entered. The higher ranges used for the sheep are divided into units which are used alternately during the summer season, thus allowing the section of range that was grazed early one year a chance to reseed the following year before the sheep are turned on. At the time this study was made, the sheep were just getting comfortably located on the range where there was an abundance of grass and weeds for their summer pasture. A striking example

Montana-1932 (Continued)

of this well-managed range could be obtained by a short trip just outside the forest through the unregulated public domain, which had been stripped of all vegetation and its carrying capacity reduced to almost nothing.

I. M. C. Anderson
Montana State College
Bozeman

1936

Fergus County Agricultural Agent:

Crested Wheat Grass: Probably the most important work done in the crop improvement work was giving encouragement to livestock men and farmers in seeding crested wheat grass for hay and pasture. The experiences of H. H. Haight of Suffolk; Central Montana Farm Agency, Glen Morton, Manager; and the Moccasin Experiment Station were used to good advantage in promoting the seeding of crested wheat grass. The Moccasin Station's three-year average, 1934-35-36, on pounds of beef produced, shows crested wheat grass 55.7 pounds per acre, native grass 24.5 pounds; on pasture days per acre, crested wheat, 26.6 days, native grass 10.9 days. These results have been borne out by the results obtained by Mr. Haight and Mr. Morton. Although they do not have actual figures to support their conclusions, their livestock have been able to make satisfactory gains by staying on the crested wheat two to three times more pasture days than on the native grass.

The first seeding of crested wheat grass in Fergus County was made by H. H. Haight of Suffolk. He now has well over 600 acres which he uses for hay and pasture. With a normal survival of the 1935 and 1936 seedings, the total crested wheat acreage of the county should be near 10,000 acres in 1937. It is likely, however, that the acreage will be materially reduced by grasshoppers. The grasshoppers, together with drought, struck the new seedings when the plants were about three inches high.

With ordinary conditions for seeding, crested wheat grass could easily increase the carrying capacity of the range land of Fergus County, by 50 percent. The acreage to be reseeded is mostly abandoned wheat land.

H. P. Stuckey
Lewiston

OREGON

1936

Agronomy Specialist

Pasture: Crested Wheat Grass: All of the nurseries on bunch grass range-land and abandoned wheat land in eastern Oregon have shown clearly that crested wheat is the outstanding grass for dry-land conditions for the following reasons:

1. It goes dormant in the seedling stage if moisture is not available, thus enabling one to get a stand if it gets through the ground. Other grasses die before becoming established.

Oregon-1936 (Continued)

2. This same dormancy habit carries into the mature stage, enabling the grass to survive the rainless summer months of eastern Oregon.

3. It starts earlier both spring and fall than any other grass.

4. It sets seed abundantly, making it easy for a farmer to grow his own seed.

5. It is one of the most palatable of the dry-land grasses.

6. The root growth is more extensive than that of other dry-land grasses, making it impossible for wild bromes, weeds, and so forth, to become established in good stands of crested wheat.

7. It withstands severe grazing better than most grasses.

8. Apparently it is cold immune so far as ordinary temperatures are concerned. It has withstood 57° below zero, with no snow, and no sign of killing.

The Soil Conservation Service has given considerable impetus to the crested wheat grass project which has been going on in this State for six years. The specialist mentions crested wheat grass at stockmen's meetings and at nearly all meetings in eastern Oregon. It is called to the attention of farmers through news stories, radio talks, winter meetings, meetings at nurseries, field tours, and so forth. The lack of seed and high price of seed have held up the project, but even so it is advancing.

The Agricultural Conservation Program of the AAA has advanced the crested wheat grass project materially. Seedings have been large in the Columbia River Basin, especially in Gilliam County, where 10,000 acres were planted in the fall of 1936, followed closely by Morrow County with 7,000. The lack of seed hindered the project, but fortunately the need had been anticipated, and the State produced 89,433 pounds of seed.

Range Grasses: For the past several years the Specialist has adopted as a special program the management of dry-land grasses. A set of slides has been developed covering a talk on this subject. These slides were used this year at the annual meeting of the Morrow County Stockmen's Association and the joint meeting of the Gilliam-Wheeler County Stockmen's Association. In addition, a talk on this subject was given at the annual meeting of the Cattle and Horse Raisers' Association. The subject was also discussed on the radio over NBC, as a part of the Western Farm and Home Hour. Articles were written for the State Wool Growers' Association magazine, "Oregon Lambs and Wool", and for the official publication of the Cattle and Horse Raisers' Association paper.

It is planned to present a good deal of this same material at a series of meetings to be held in all of the eastern Oregon counties during the coming winter. These are forage resource and feeders meetings, and will attract considerable attention. Mr. H. A. Lindgren, Livestock Specialist, is in charge of these meetings. The set of slides has been revised and brought up to date.

Much of the same material has also been worked into a crested wheat grass bulletin, which has been completed and will be distributed early in 1937.

In presenting this grass management material, every case is seized upon to tell the story of grass and how it can be maintained. It is the specialist's idea that farmers naturally want to keep their grass, and if they understand the principles of its growth and why it is killed out and under what conditions it survives, that will be the first step toward

Oregon-1936 (Continued)

management of the ranges so as to maintain grass hereafter. We believe this to be one of the most important pieces of work under way.

E. R. Jackman
Lawrence Jenkins
State Agricultural College
Corvallis

WASHINGTON

1936

Animal Husbandry Specialist:

Sheep Range Land in Western Washington: Many inquiries are received each year as to the advisability of ranging sheep and/or cattle on the cut-over lands of western Washington or Oregon. For this reason the extension animal husbandman has tried to keep in touch with the results rangemen are getting from running ewes and lambs on this cut-over land.

Some time was spent in Lewis and Cowlitz counties observing land that had been seeded since being cut over. Some of this land was very good and had a fair stand of grass and weeds, and looked as if it would make satisfactory pasture. One band of sheep, March lambs, that had been brought from east of the mountains, were marketed during the first 10 days of September. These lambs weighed about 71 or 72 pounds. These lambs and ewes were on good pasture and one would have expected that the lambs would have weighed at least 85 pounds. The weights were very disappointing and not too encouraging of pasturing sheep on the west side, if you are depending upon marketing grass-fat lambs.

Similar observations were made down in Columbia County, Oregon. Lambs marketed about the 30th of August, off the range, lambs that were born in March, weighed 69 pounds. Lambs from the same flock on the same range in 1935, weighed considerably heavier and the feed did not seem so good in 1935. That was not only my opinion but it was also the opinion of the herders who were caring for the sheep.

Range Livestock Program: The range livestock conservation meeting in Spokane was generally well attended. Suggestions from the ranchers as to whether the program should be put into effect or not, and if so, what practices would constitute range improvement, were made rather freely. Most ranchers were pleased and surprised to know that such practical things as spring development, drift fences, and deferred grazing would be considered range-building practices. As a result of the meeting the following suggestions for practices upon which payments would be made were as follows:

1. Deferred grazing.
2. Rotation grazing.
3. Natural revegetation.
4. Artificial reseeding.
5. Water development.
   a. Wells
   b. Reservoirs
   c. Springs
   d. Pipe lines
6. Rodent control; predatory animal control.
7. Fencing.
8. Contouring.
9. Water spreading.
10. Trail development.
11. Poisonous and noxious weed control.
12. Windbreaks.
13. Insect Control.
14. Fire guards.
15. Loading and grading corral.

Washington-1936 (Continued)

It was the feeling of most ranchers present that if the program could be gotten under way immediately, many would be willing to take advantage of the program in the fall of 1936.

The extension animal husbandman gave assistance to those counties desiring help in explaining and discussing the range livestock program. By the end of the season 574 range examinations had been completed, covering 1,415,715 acres of range land, involving maximum benefit payment of $80,000.

Con S. Maddox
State College of Washington
Pullman

WYOMING

1934

Carbon County Agricultural Agent:

Meadow Improvement: The Meadow Improvement Project is the major project in Carbon County. It is a basic livestock project, as well as a crops project. It reaches the very foundation of Carbon County agriculture because it is improving and increasing the production of winter feed. The meadows reported are only those on which definite and complete information is on file in the County Extension Office.

The continued demonstrations in alfalfa cultivation have proven decisively to the people of this county the value of this work, because it has shown that the weed problem can be controlled; that greater yields can be obtained; that finer alfalfa can be produced; and that better use can be obtained from the water applied. This latter is of particular importance in years of water shortage, such as the present year.

With native meadow cultivation, the problem of the particular type of harrow best adapted to this use has been one of the problems commanding considerable attention. It is rather definitely demonstrated now that an old-fashioned A-type, spike-tooth harrow is the better type, and all ranchers are turning to this type of harrow.

Louis Schilt of Saratoga, who by cultivation increased the production of hay on 90 acres, from 60 tons to 127 tons during the years 1931 to 1933, inclusive, in 1934 cultivated only 50 acres of this land. This was a ranch which was very short of water this year, and Mr. Schilt states in his report that there was a 25 percent difference in production between the cultivated and the uncultivated land. Mr. Schilt furthermore states that the quality of the hay was superior and that the irrigation water spread and seeped into the soil better.

1935

James McIntosh of Split Rock, who after considerable thought and consideration, met a peculiar problem in a very definite way, finds much of his land extremely rough and covered with old brush hummock, where in the process of meadow making the brush was simply killed out by flooding, making a meadow floor too rough for the practical use of an ordinary harrow. Mr. McIntosh constructed a special cutting harrow of angle-iron, with adjustable teeth to

Wyoming-1935 (Continued)

cut these meadows down. Ten acres were treated with this harrow this year with the result that a sufficient smoothing was accomplished that cultivation with an A-type harrow is practical. He has laid the foundations for a complete job of meadow renovation starting next year.

Paul Pearson of Saratoga reports that two years' cultivation on 100 acres of native meadow has resulted in doubling the stand of grass. In addition, the floor of the meadow is smoother and weeds have been put under control. This was accomplished on a 35-year-old meadow.

John J. McElroy
Rawlins

1936

Platte County Agricultural Agent:

Range Management: A Committee on Range Conservation was appointed in midsummer to meet with a group of similar committees of the State, on the range program. The following is a report of this committee and the recommendations which they made to the State group, many of which have been carried out in the range program.

1. That control work on rodents and insects (grasshoppers and Mormon crickets) be increased to protect the range grass.

2. We urge that some plan be worked out to have the submarginal lands division purchase such lands in smaller blocks, such as one-half sections, or a few sections, and that these be leased for long periods of time to stockmen adjoining this area and be administered by county and local committees.

3. Recommended that the stock-grower be given an opportunity to enter into a range management program whereby the range would be improved by some grazing improvement plan as deferred grazing, limited grazing, certain seasons, and so forth, and by limiting numbers of stock to a reasonable carrying capacity of the range (capacity to be determined by local men), and that a payment be made to cooperators who comply, sufficient to repay them for holding numbers to their allotment for the period agreed upon.

4. Expand soil conservation work to include areas where water run-off is heavy, to store water for livestock and deplete or dissipate water on grass lands nearby, or if growers construct such dikes or dams with their own funds under supervision of soil conservation engineers that they be given payments nearly equal the cost of such construction.

That the program if worked out along the above suggestions be administered by local and county committees elected by the cooperators.

G. W. Boyd
Wheatland

Section 2.--Miscellaneous Range Activities

Conservation

ARIZONA

1932

Agronomy Specialist

Terracing: Soil erosion, both sheet and gullying, is common on both range and farm lands in Arizona.

Due to contacts by the county agents and articles and circulars from the county agents' offices and the main Extension office, three demonstration terraces were built this past year in Yavapai County, two in Coconini County, and one in Navajo County. These terraces are to be watched closely for results and have already created considerable interest within the counties in which they are constructed.

Another phase of terracing which is relatively new in the United States is the range terrace, which is being tried in Pima County. In 1931, an area of desert mesa land was terraced, which practice has proven very successful in holding top soil conserving moisture, and stimulating plant growth. County Agent C. B. Brown reports that on June 29, 1931, there was a rainfall of 0.84 of an inch. Soil on the sheet eroded area was wet to the depth of only 1 inch, while on an area only two rods away having vegetation and top soil it was wet to a depth of 6 inches. On the same areas there occurred on November 22, 1931, 1.68 inches of rainfall. Determinations made on the 24th showed that on the eroded area there had been only a four-inch penetration of moisture, while on the vegetation area there had been a penetration of one and one-half feet.

The work now started in Arizona should gather momentum and be of great immediate value to the farmers and rangemen of the State, as well as of immeasurable future value to all the people of the State.

Irrigation: Throughout Arizona there are hundreds of thousands of acres of rich level mesa land which, through the use of flood waters, could be utilized in the production of supplementary feed stuff, such as corn, hegari, sweet clover, and Johnson grass for range animals.

Mr. C. L. Phillips, located some 15 miles west of Tucson, produced a good crop of corn, hegari, melons and small grains with less than four inches of rainfall during the season and two irrigations from flood water. The most common and practical use of this method of flood water utilization, however, is in the production of pasture. Johnson grass has proved an excellent pasture crop under southern Arizona conditions.

The irrigation of heavy soils and slick spots has been a serious problem for a number of years. The solution of the problem seems to be one of irrigation on a dead level with the addition of organic matter in the form of barnyard or green manures.

Arizona-1932 (Continued)

A number of demonstrations conducted the past two years in Pima, Pinal and Maricopa counties where organic matter was incorporated and irrigation on a dead level was practised have shown good results.

H. N. Watenpaugh
College of Agriculture
University of Arizona
Tucson

1934

Pima County Agricultural Agent:

Range Erosion: About a year ago the writer was talking to one of the cattlemen in Pima County, Arizona, through whose holdings passes the Brawley Wash in the Altar Valley, about erosion problems and the possibility of securing more floodwater for supplementary feed production. After a moment's reflection this old pioneer cattleman replied: "No, Brown, I have spent hundreds of dollars fighting a losing battle, and only God Almighty can handle the situation now."

At first floodwater concentrated in an old road, or a cow path, and formed a small ditch which seemed to hardly attract attention.

Then one day we noticed that a recent heavy flood had really gone to work in earnest to dig out a good channel for itself. We decided to see what could be done about the matter and went after the problem in a half-hearted manner by putting in some brush and a few barricades. The next flood, however, just washed around these obstructions making the channel wider and only making matters worse.

About that time we realized that the concentration of flood water was increasing and that the channel was rapidly lengthening.

Then the arch enemy of fertile range land--concentrated floodwater--was given artificial assistance. The increased use of the auto had made necessary better roads which would be passable under all conditions. Accordingly, the county, in one instance, selected a right-of-way across the valley some miles up from the ranch of our friend who had resigned his fate to the Creator of all things. In 1920 the county started construction of a long grade with a hundred-foot bridge in the center and located in the very trough of the valley.

The stage was then all set and havoc began. Great quantities of floodwater which had formerly spread out over the whole valley and moved slowly were now gathered into a raging torrent and the destruction of as fertile a stretch of land as ever graced a cow ranch was on its way. Nature had been outraged by the thoughtless and careless hand of man and it was out for revenge.

Today the job is well along to completion, and there stands as a monument to all who had a part in producing it, a wash thirty miles or more in length, ten to forty feet deep, and from one hundred feet to a quarter of a mile in width. Hundreds of side washes have taken up their part and so the play goes on.

The fundamental principle underlying all erosion-control work is deconcentration of destructive floodwater from narrow drainage courses, with emphasis on the importance of eliminating erosive concentration of flood water by highway systems or other artificial construction. Narrow culverts, bridges,

Arizona-1934 (Continued)

concentration dykes and ditches will, if spreading works are not used in connection with them, undo in time a large part of all that one can accomplish by good range management.

In the employment of artificial measures on a badly eroded area of range land corrective work should usually start at the source rather than in main channels. However, if destructive concentration can be economically effected in main channels, we would advise that such work be done simultaneously. The work is divided as follows:

Small arroyos and washes (tributaries).

1. Brush.
2. Loose rock dams.
3. Rock mattress dams.
4. Woven wire stockades either with or without rock.
5. Diversion dykes.

Main arroyos and washes (where erosion has not progressed).

1. Diversion and spreading.

Where there are stretches of fairly level or smooth range bordering drainage courses on their way to the valley proper, divert the floodwater at suitable intervals and irrigate the native forage plants. These wide ditches usually should be started from the natural stream level and run on a grade not to exceed five-tenths of a foot to the hundred, and with low brush or woven wire dams at intervals to force part of the head of water through the dyke bordering the lower side of the ditch. In this way much flood water is made to penetrate into soil and produce a greatly increased crop of grass.

Where stock water is not easily obtained from wells, suitable locations can be selected near main arroyos and a represso or charco constructed in which a large amount of water can be put to beneficial use.

The method of preventing erosion through use of range contour dykes is not soapplicable to Arizona. It is better adapted to ranges which are relatively smooth.

In Arizona there are numerous valleys which are concentration points for flood waters which have traversed the slopes (sometimes miles in extent), finally culminating in the crests of mountain ranges.

When erosion in such valleys becomes well started there seems to be only one practical way of repairingthe damage and that is a slow and very expensive one. This method involves the construction of low, woven wire check dams, two or three feet high, built at proper intervals in the stream bed. When the channel floor has been built up to the level of the check dams, a new set is put in and the building-up process repeated.

A series of heavy woven-wire, rock stockade deflectors will help straighten drainage channels and reduce erosion in bends. Use a double row of iron pipe posts well set in the stream bed and fasten woven wire set below the stream bed, level to each row of posts; then fill in, preferably with rock. After the building process is well begun in these beds, this work can be further aided by the planting of trees or some adapted grass.

C. B. Brown
227 W. Congress Street
Tucson

MONTANA

1936

Phillips County Agricultural Agent:

Land Utilization: Through the cooperation of the Taylor Grazing district, the two State grazing associations, the Resettlement Administration and the Extension agent's office, 475 farmers and stockmen have been given range assignments, 133 stock water reservoirs have been started and 68 completed, two dipping vats and corrals constructed, and 48 flood irrigation systems involving 4,185 acres planned and surveyed.

The definite assignment of range land is the result of 12 years of educational and organization work. Operators are now beginning to exercise complete control of their grazing lands and are given the needed incentive to improve them. With the vast amount of open range in the past, this has been almost impossible. Deferred and rotation grazing may now be practised with a reasonable certainty that the operator will not be grazed off by some outsider or local free lance. While the Extension Agent has refrained from taking any part in the actual range assignments, his office has coeperated in an advisory and educational way.

Control of water holes generally means control of adjoining range land. In the past this has been confined largely to natural water courses and has meant an uneven distribution of grazing, with the result that range contiguous to the water holes was overgrazed and other large areas left unused. To help correct this situation the Resettlement Administration has undertaken a reservoir building program with the ultimate goal of having a good supply of water every two miles on the range.

The last seven years have taught the stockmen that livestock security means bigger feed reserves. In the dryland areas this can be accomplished by using run-off water for flood irrigation. Since 1923 a total of 217 flood irrigation systems involving 20,635 acres have been changed from sun-baked sagebrush flats to feed-producing land.

Another bad drought has still further changed the farming pattern of the county. More land is being abandoned, either voluntarily or through land purchases by the Government. Ranchers are rounding out their units by securing control of these abandoned farms. The tendency is toward fewer and larger units.

H. M. Oefstos
Malta

NEW MEXICO

1933

Harding County Agricultural Agent

Water Conservation: T. J. Heimann sought the agent's advice as to how to take advantage of the terrain and rainfall so that he could develop water in each of his pastures. The agent went over Mr. Heimann's ranch with him and selected three dam projects. On the west side of his range, a dam

site was located in a draw where, with very little work, a large reservoir of water could be produced, and the spillway made to run over the hill into a flood plain and would flood several hundred acres of grass land and could then be recaptured by a ditch and carried into another dam which we located in the southwest corner of his place. These two dams were located two miles apart and would provide a watering place for the cattle without their having to travel over a mile and a half from any place in the west pasture. On the eastern side of his place he has two good wells fairly close together; but he has quite a tract of land upon a mesa which provides plenty of good grass but no water. We selected a dam site in the head of a draw and from this ran a ditch in each direction around the mesa, which will catch most of the run-off and carry it into this dam. When these projects are completed, Mr. Heimann should have excellent watering places over his entire ranch.

James G. Wayne
Mosquero

Grant County Agricultural Agent:

Erosion Control: During March a meeting was held at the city hall relative both to the Gila watershed and the limit to which cattlemen on this watershed might be cut within the next few years in order to bring back the range to the point that retrogression would not proceed as rapidly as it has for the past generation. This meeting was attended by 100 cattlemen of Grant County. The point that was emphasized was that either cooperation could be given the Federal Government in protection of the range through the reduction of livestock in the area or the reduction in livestock numbers would be even more rapid and permanent by the continuation of a short-sighted policy of over-grazing year after year. The meeting finally went on record as being in favor of having the Gila watershed placed under a range conservancy plan and thus secure aid in the control of erosion that had already taken place. Due to this meeting we now have two C. C. C. camps in Grant County for the control of washing of soil and the storage of water. So far these camps have functioned much better than most of the camps that have devoted all their time to the building of dams, as the cattlemen are cooperating with them since it furnishes them an ideal method of securing better water distribution over their ranges.

The work has apparently not been started too soon as the Gila River went dry in many places during the summer, something that had never happened even during the most severe droughts. Wells also through this area went dry, and even where cattlemen had almost ample grass they were forced to sell to the Government because of shortage of water. Because of the steep slopes and mountainous type of country in this county erosion is of particular importance here and is making its presence known by the large amount of weeds that are supplanting native grasses on the range. The appropriation for the upper Gila Valley is for $250,000.

Stuart Stirling
Silver City

OREGON

1936

Morrow County Agricultural Agent:

Wind Erosion on Range Land: In the North end of Morrow County there is an area about 35 miles long and 15 miles wide which has been devoted entirely to grazing. Stockmen who have been in this county since the early days say that this section was originally a solid stand of bunch grass with very little evidence of sagebrush. In the early days this section was used mostly for cattle and horse range. Gradually the horses were eliminated and sheep replaced the cattle. This whole section of country fits in well as early sheep range. Over-grazing has driven out most of the bunch grass which has been replaced by less productive annual grasses, sagebrush, and weeds.

There is probably little doubt that with proper management this whole area, comprising roughly 240,000 acres of land, could be brought back to a point where it would furnish feed for many more sheep than now graze on it, or would furnish much better feed for the same number. Water developments are few and far between, and it has been necessary to trail sheep considerable distances to water. The result is that the range for some distance around the water holes is seriously impoverished. Over most of this area, it would be possible to get water at a depth of 100 feet or less.

The gradual and continual deterioration of this range has resulted in a situation which has become so acute that an urgent demand has been made among the legitimate users of that range for some type of range control that would not only stop the deterioration of the range but would aid them in bringing it back to something like its former condition.

As a response to this demand, a meeting was held on the 29th of July in the county agent's office for the purpose of considering ways and means for controlling grazing in this area. P. M. Brandt, Head of the Bureau of Animal Industries at Oregon State Agricultural College, and Marvin Klemme, Regional Grazier at Burns, were present to advise us in our discussion. As a result of this meeting a petition was prepared and signed by all of the men present. This petition was addressed to F. R. Carpenter, Head of the Grazing Service, Department of Interior.

After considerable correspondence and delays of one sort or another, the Department of Interior finally set November 6 as the date for the meeting of all the users of range in the territory included in the petition.

Mr. Galt of the Grazing Service at Burns, discussed the operation of grazing associations in the existing grazing districts administered through that office. The group went on record unanimously as favoring the organization of a grazing district.

Nearly all of the users in the projected Grazing District are heartily in favor of the regulation of the use of the range to the end that not only will this land be not further impoverished, but that its carrying capacity may be improved. The writer feels that the way has been paved for real progress in range improvement.

Joseph Bellanger
Heppner

Wyoming (Continued)

1936

Campbell County Agricultural Agent:

Water Conservation: The Soil Conservation Service advanced funds to be used in the construction of stockwater reservoirs on privately owned land. A cooperative agreement was signed with the owner furnishing the following: All materials used in the construction of the dam, stock water for teams used in the construction of the dam, all equipment needed for the construction work, filing fee of $2.00 to the State Engineer, fence the fill of the dam stock tight, furnish one four-horse team during the construction of the dam, and to maintain the dam for a period of five years. The Soil Conservation Service paid the wages of the crew.

The county agricultural agent took applications from ranchers who needed stockwater reservoirs, selected suitable sites, arranged for the crew, kept the payroll, drew up cooperative agreement contracts, and furnished description of the cooperators' holdings and location of the dam.

In selecting the sites from among the 250 applications, the following points were kept in mind:

(1). Location. A central point in relation to the location of the drought-stricken farmers who would work on the dam was sought.

(2). Amount of Storage Space. The amount of water that could be stored in relation to the amount of dirt required in the fill of the dam was considered.

(3). Type of spillway. The permanency of a properly constructed dam depends upon the permanency of its spillway. Natural sod spillways that would spread the water over adjacent flats were selected wherever possible.

(4). Drainage. The drainage was inspected to determine if there would normally be sufficient run-off to fill the reservoir.

(5). Need of stockwater. The reservoirs were located only in dry areas where stock had to travel from one to three miles to water.

(6). Silt. Dams were not located on drainage that displayed evidence that the run-off carried a great amount of sediment which would quickly fill the storage basin.

(7). Soil texture. Dams were located only where the soil had the property to puddle readily and prevent seepage.

All dams were surveyed and staked to meet the specifications set up by the State engineer of the State of Wyoming. The Soil Conservation Service attempted to furnish engineers to survey dams as needed. However, the territory was extremely large and the number of engineers available could not cover it adequately. In order to keep the crews at work, the agricultural agent secured the cooperation of R. L. Streeter, Campbell County Surveyor, who willingly gave his time to expedite this program. A total of 28 dams were constructed in Campbell County under this project. Mr. Streeter surveyed and staked 13 of these.

This project furnished work to 160 drought-stricken farmers and their teams for a period of three months--August, September, and October. The total payroll was approximately $30,000. In addition, 28 large stockwater reservoirs were constructed in areas where they are badly needed.

F. E. Dominy
Gillette

Noxious Weeds

ARIZONA

1932

Navajo County Agricultural Agent:

Weeds: In the spring and forepart of the summer, the loco weed on the open range over large areas causes rather serious losses of mature cattle, young stock, and calves, through abortion. In 1931, Professor A. B. Ballantyne, Assistant Extension Director, University of Arizona, and the writer began a study of the loco situation with respect to animal losses and control measures. A number of cattle outfits were interviewed. According to their reports the annual losses of mature cattle in bad loco seasons is about 26% and 57% of the calf crop, with reduction of calf crop in the years following bad loco seasons. Cattle that eat loco freely readily become locoed.

The loco plant is a winter annual beginning its growth in spring, summer, or fall of a wet favorable season and over-wintering as a green plant beginning rapid growth with the first mild days of late winter and early spring, thus making the only green plants on the general cattle range of Northern Arizona in late winter and early spring.

The fall of 1931 was favorable for a loco test. The Extension Service, under the supervision of Assistant Director Ballantyne, rented a pasture of about a section adjacent to the Holbrook-Snowflake highway wherein there was an abundance of well distributed loco plant and plenty of forage and water for cattle. This large pasture was divided into three smaller ones as nearly uniform in stand of loco and available forage as might be. Flake Brothers, of Snowflake, furnished twenty-four head of cattle with which to make the test. One group was given steamed bone-meal in addition to the native forage, water and salt supply; a second had cottonseed cake; a third had no special consideration used as a check.

The results showed that those eating cottonseed cake fared better than either of the others, and the check group came out second best. Cattle on the open range showed effects of loco approximately three weeks earlier than did those in the test, which may have been due to the fact that the test cattle had salt and water easily available.

C. R. Fillerup
Snowflake

IDAHO

1932

Agronomy Specialist:

Weed Control: As has been the custom in previous years, a careful survey of the work done in 1931 was made before recommendations for 1932 were sent out.

Idaho-1932 (Continued)

The survey of the work done in 1931 consisted of a trip into all of the counties doing weed work and going over the experimental plots which this department put on in 1931, as well as commercial work done by the counties. This included careful checks as to time of application, amounts of chemical used, and so forth. In each county the group usually consisted of the county extension agent, county weed supervisor (if one was employed), county commissioners, and any interested farmers.

Readings of the surface kill were made on each treated area. This was followed by digging into the ground to ascertain the depth of kill and to find out if any roots remained alive. Then there usually followed an informal discussion concerning the results, taking into consideration the causes contributing to the kill or lack of kill.

At the close of this tour all the results were summarized and from this summary, the 1932 recommendations were drawn.

Sodium chlorate, when properly applied, was found to give the most satisfactory results. Kills running from 50% to 100% were found, but in general it was found that where sodium chlorate was used in a water solution, using one pound per gallon of water and the infested area thoroughly sprayed, fairly uniform and satisfactory results might be expected. Different species of weeds require different amounts of chemical and equivalent applications on the same species do not always give the same results, even when applied at the same time. Contrary to previous recommendations, it was found that spraying the top growth of weeds made very little difference with the results. On many experimental plots excellent results were obtained from spraying with sodium chlorate after all of the top growth had been removed. This has given rise to the belief that most summer applications were largely for the killing of the top growth to prevent seeding, and that the actual control comes from applications made during the late fall.

Calcium chlorate, sold under the trade name of "Atlacide", is used in several counties. This consists of a mixture of sodium chlorate and calcium chloride. The hygroscopic properties of this mixture are claimed to reduce the fire hazard. The results obtained from the use of Atlacide varied considerably, but in general the results were somewhat less satisfactory than obtained with sodium chlorate.

Carbon bisulphide was used quite extensively in Twin Falls County but here again there was considerable variation in the results, depending upon the moisture conditions of the soil at the time of application. When applied under the proper conditions of moisture, this chemical is almost 100% effective, but if the soil is dry, it is practically ineffective. The cost of material and the cost of application have combined to limit the use of carbon bisulphide to areas of high priced land where the crop returns would justify the expense.

Clean cultivation was tried more extensively last year than in several years previous, particularly in Jerome, Minidoka, Madison, Jefferson, and Franklin Counties. Under the present conditions, when prices of farm products are low and labor is relatively cheap, clean cultivation offers the most economical method of weed control. In numerous cases, 100% control has been effected through one year's clean cultivation. With present costs this can be done for less than $25 per acre. This is less than half the cost of chlorates and not over one-fourth the cost of carbon bisulphide. In addition, the

Idaho-1932 (Continued)

physical condition of the soil is improved at the end of the cultivation period, while with chlorates, the detrimental effects may be felt for a year or so following application.

H. L. Spence, Jr.
L. V. Benjamin
Boise

OREGON

1935

Curry County Agricultural Agent:

- Weed Control: The use of sodium chlorate and carbon di-sulphide as a weed killer has generally proved to be unreliable and expensive. On the sheep ranges various kinds of brush are considered the greatest hazard. On some of the bottom lands Canadian thistles and evergreen blackberries have been quite a problem. Confining goats or hogs on these various areas has proved more successful than any other practice. Robert Williams, Brookings, confined 154 goats on 80 acres of dense brush from the first of March until the middle of September, at which time a person could ride a horse almost anywhere within the enclosure and an excellent seed bed was prepared. This was seeded before the first fall rains and Mr. Williams reports an excellent stand of grass.

R. M. Knox
Gold Beach

UTAH

1936

Agronomy Specialist:

State-Wide W. P. A. Weed Project. The State Correlation Committee, consisting of Director of Extension Service, Director of Experiment Station, State Commissioner of Agriculture, State Farm Bureau president, and Agronomist at the College, waited upon the authorities of the W. P. A. forces in the State, early in February. The result was the setting up of a State-wide weed project. Director Peterson asked me to represent the Extension Service in handling this project.

George L. Hobsen, a member of the State Board of Agriculture, was appointed State Weed Supervisor. Each county was organized with a weed committee, consisting of a county commissioner, county agent, agricultural inspector, county farm bureau president, and the district W. P. A. supervisor. The county weed supervisor divided his W. P. A. workers into crews of from 12 to 15 men, with a foreman over each group. Each crew was given an area of sufficient magnitude so that the whole area could be gone over once every ten days to two weeks during the growing season.

Solicitors were appointed for each crew to make contact with the owners of land where weeds were located. The business of these solicitors was to get the cooperation and permission of the land owners to work the land. All

Utah-1936 (Continued)

arrangements were made by these solicitors so that everything was always in readiness when the workers arrived and no time was lost. The arrangement was that the owners of the land upon which the weeds were growing plow the weed patches, and in every possible way get the land ready so that the W. P. A. workers could do their work most effectively and with the least possible waste of time. Following is Mr. Hobsen's report of the work done in the State on this project.

Final Report of W.P.A. Weed Eradication Project
as Compiled For The Season 1936

The project was State-wide, covering 21 counties, having originated by the efforts of a correlation group, namely, State Board of Agriculture, Extension Division of the Agricultural College, Utah State Farm Bureau, and Works Progress Administration. In the original project the sum of $910,000.00 was requested and granted by the Federal Government, of which $533,818.67 had been expended in the season of 1936.

There has been employed each period 1,265 men, covering all branches of work such as relief labor, relief supervision, non-relief supervision, teamster, truckmen and solicitors.

The total outlay by the Works Progress Administration has been $485,084.58, with contributions of $48,735.00, making a grand total of $533,819.58. Hand cultivation was performed on cultivated land, streams, canals and ditches, roadways, fences, railroad rights-of-way, and so forth. We have covered 19,184.07 acres, or an average per period of 1,370.29 acres, at a cost per period cultivation of $18.69, or total cost for the season of $261.61 per acre.

Team Cultivation. Under team cultivation we have worked 38,833.86 acres at a total cost of $102,440.48, or a period cultivation of 2,773.84 acres, at a period cost of $2.64, or season cost per acre of $36.96.

Mowed. There has been mowed in all districts a total of 951.69 acres at a season cost of $2.94 per acre, or a total cost of $2,801.17.

Spraying: There were 1,812.93 acres sprayed for the season, at a cost per acre of $8.63. This cost is low, for the reason that some of the southern counties, where poison milkweed is found (and which does not grow in patches as other weeds do), covers a large acreage, with just single plants here and there. There was no other means of calculating the acreage so the block of land covered was counted and found its way into this spray column. The Salt Lake County written report shows spray costs on a highly infested area at $77.27, which cost would be a good estimate where it was done on solid acreage and under common circumstances.

Burned: The process of burning has mainly to do with clearing and burning green and dry vegetation, lending largely to the prevention and spread of seed, and has no particular advantage so far as eradication of plants is concerned. Flame guns mainly were used on steep banks, ditch banks and in wooded or willow-covered sections. Some burning, however, has been done in clearing ground so cultivation with blade weeders could be possible. Covered under this project are 2,487.89 acres, at a total cost of $7,141.46, or an average cost per acre of $2.88. This acre cost appears low, but in consideration of where fields were raked by team, and vegetation piled and burned, it would not show an excessive cost per acre.

Utah-1936 (Continued)

Plowed Land: There were 6,387.46 acres plowed, some land as many as three plowings in the season, made possible by rains and floods which packed land so the blade weeders would not cut the required depth. The total cost for all plowing in this project is $41,828.09, and a cost per acre of $6.54.

Other Costs: There were 232.79 acres covered by the season's work, not called for under heads of the W.P.A. period report, at a cost of $5,494.63. Most of this acreage is covered by three items: Salted, removal of brush, and weed survey work. In some counties weed survey could not be continued in the early part of the season because of lack of available men, but was continued in the latter part of the season and charted to Other Costs, which should have been absorbed in acreage costs. All of this cost is not chargeable to the acreage.

These figures cover 69,890.69 acre cultivation at a cost of $533,818.67, or a period cost, including team and handwork, of $7.64 per acre cultivation.

The noxious weeds worked by the project are, in the order of their ability to resist eradication: white-top, wild morning glory, Russian knapweed, Canada thistle, puncture vine and poison milkweed. Some work also has been done cleaning livestock trails of sand and cocklebur (which, under the general cultural method have not been worked), in which case burs were pulled by hand and burned. If I can interpret various reports properly, and by inspection conclude on the eradication of wild morning glory, white-top and knapweed, a kill of 50 to 80 percent has been accomplished, especially when land was reasonably dry throughout the season. On Canada thistle we think, in most cases, an almost complete kill has been made.

J. C. Hogenson
Utah State Agricultural College
Logan

WASHINGTON

1936

Kittitas County Agricultural Agent:

Poison Plants: Tall larkspur, a poison plant causing serious annual losses in range cattle, was treated with atlacide in 1935 on the John Sienea farm on the Umtaneum. Spring observations showed about 10 percent of the plants killed but the others making a thrifty growth. One plot was heavily dusted with sodium chlorate on this visit. In May a second observation showed nearly all plants killed except those which had been standing in water. These were redusted in May and two additional plots treated -- one burned off with a Hawk firegun and the other treated with kerosene from an ordinary spout can, being sure that the oil ran down into the crowns. The remainder of the patch was sprayed with atlacide -- 2 pounds per gallon of water -- using a total of 70 pounds. A heavy rain fell and caused considerable run-off after the spraying. In June, examination showed about 75 percent of the roots completely rotted, but some still healthy from the crown down. Most of those still covered with water were dead and rotted above

Washington-1936 (Continued)

and below the crown but showed live tissue and bud development in the crown itself. Results on the burned plot were not satisfactory but on the kerosene plot all plants treated were dead and decaying -- root material still smelled strongly of kerosene.

W. O. Passmore
Ellensburg

WYOMING

1932

Poison Plants: Professor O. A. Beath, station chemist, spent June 6 and 7 in the county. On June 6, we visited the Earnest Lynde ranch on S. A. Creek, north of Recluse. Mr. Lynde has been losing from five to twenty head of cattle each season for the past 10 years, in one pasture. We made a careful survey of the pasture, finding Hayden's Vetch, surrelia, camas, larkspur and loco. Hayden's Vetch was the only poisonous plant found in sufficient quantity to cause losses. This plant is quite selective in its location; so, therefore, it was found growing in well defined areas on the adobe or gumbo hillsides. Prof. Beath recommended that the best method of eradication was to grub out the plants. Death losses could be avoided by supplying the cattle plenty of salt at all times and pasturing such areas early in the season or withholding such pastures for winter grazing.

On June 7, we made a trip through the southern part of the county, observing the range for poisonous plants as we traveled. Large areas of woody aster were noted in the Belle Fourche River district. Of course, Death Camas was ever present. Hayden's Vetch was also found here and there, throughout the entire area. We visited the B. J. Reno sheep range where they had suffered a severe loss of sheep two years ago when moving a band of yearlings into the shearing pens. The only poisonous plant that could be found there in sufficient quantity to cause losses was Hayden's Vetch.

Since Professor Beath was here, Mr. Charles Offutt, cattleman of the Little Powder River section, brought in some Hayden's Vetch and reported that he had lost several cattle and wondered if that plant was the cause of his losses. He stated that he had always had this plant in his pasture and up until this year he had had no losses. He was advised to move his cattle out of that pasture and give them all the salt they wanted. After their craving for salt was satisfied, he put them back in the Vetch-infested pasture and suffered no further losses.

In January, S. O. Sherman of Lawver called my attention to a gray-green moss or lichen which they suspected was the cause of complete paralysis and, in some cases, death of cattle. Shortly after that, similar cases were reported by several men. A quantity of the moss was sent to Prof. Beath for analysis. His report was that this moss had been under suspicion several years ago in the Casper section, but due to a slip up in laboratory technique they hadn't been able to confirm their suspicions. However, last winter they got very satisfactory results in the laboratory and definitely established the fact that this moss was causing the troubles reported by our cattlemen. We found that by giving the cattle a partial feed of hay and cotton cake before they went out to graze in the morning, practically all the trouble was

Wyoming-1932 (Continued)

avoided. We also found that a good, stiff dose of Epsom salts (1 pound) and 3 ounces of sweet spirits of nitre, was a satisfactory treatment for cattle affected with the temporary paralysis.

We also found that thorough massaging was helpful in hastening recovery. No doubt, raw linseed oil could be substituted for the Epsom salts, with satisfactory results.

1933

Animal Husbandry Specialist:

Poison Plants: A cattleman in Big Horn County lost 21 head of cows and yearlings within two days' time. This loss occurred about May 20.

Happening to be in Basin at this time, the livestock specialist, together with the county agent, went out to look over the situation. These cattle all died in an area not greater than 20 or 30 acres. A dry bed of Shell Creek practically surrounded the area. In this old creek bed cockleburs were coming up by the millions. At the time we saw them they were just past the two-leaf stage. Without a question of doubt, these cattle had been killed by the new growth of cockleburs in that creek bed. A chemical examination failed to show any signs of other poisons.

J. R. Neale
College of Agriculture
University of Wyoming
Laramie

1934

Niobrara County Agricultural Agent:

Poisonous Plants: In June, livestock losses were reported on the divide between Cotton Wood and Indian Creeks. The Assistant State Veterinarian and the county agent investigated this report of losses, and after three days spent there, it was decided that the cause of death losses and sickness in the livestock was due to selenium poisoning. The water in this pasture being low, contained better than 1½ percent of soda and salts, making it so bitter that the livestock practically refused to drink it. In order to get the amount of moisture they needed they were eating a large amount of greasewood and other plants which contain high amounts of selenium. As soon as the trouble was diagnosed, Dr. Goode, assistant State veterinarian, made the recommendation that the men who had cattle in these pastures move them to other territories. Some of the cattle which were sick when the diagnosis was made were moved to new pastures in wagons. Several weeks later most of the cattle seemed to be entirely free from the symptoms of stiffness, blindness, and emaciation.

Edgar A. Reeves
Lusk - Court House

Wyoming, (continued)

1936

Crook County Agricultural Agent:

Livestock Poisoning: Considerable losses were experienced in livestock in all parts of the county. The heaviest losses in cattle were while they were being fed either oat hay or oat straw. John Crago, of Beulah, Wyoming, lost 44 cattle within three hours' time. The cattle had been fed a load of oat hay during the morning. This was the first feeding of oat hay these cattle had had, but he had been feeding the same feed to his horses for some time. A small band of sheep that were fed with the cattle the same day showed no indication of any poisoning. The cattle started dying within four or five hours after they were fed. Since that date, Mr. Crago has lost 22 head from oats grown in this same ground.

Dr. Port, State veterinarian, and Professor Beath, plant pathologist, were summoned, and they made an examination as soon as possible after this occurred. Professor Beath has been running several tests with feed from the ground on which this oats was grown, and has made several trips of inspection to try and determine the exact cause.

Ollie H. Queen lost 26 head from feeding oat straw under very similar circumstances.

Nat Griffis and George Richards had a loss of 12 head. All these losses occurred within a short time of each other and the cattle showed the same symptoms upon examination.

Other losses were experienced among sheep, which was probably due in most cases to Selium-bearing plants that grow on some of the shales in parts of the county. Examinations made on the ranch of Ray Edsall and Blake Brothers showed that there were these kind of shales present and also the plants that are most apt to carry this poisoning. The poisoning in these plants this year seems to be more potent than in normal years.

Other losses in livestock occurred in Prussic Acid plants due to the fact that stock were forced, on account of lack of grasses, to eat any kind of plants that were available. A great many losses occurred when the cattle were feeding on choke-cherry bush.

L. G. Landers
Sundance

Rodents, Predatory Animals, Insect Pests

ARIZONA

1932

Coconino County Agent:

Porcupines: This animal became a major project in 1931. Practically all runs in the cutover areas along the Coconini and Tusayan Forest boundaries in the vicinity of Kendrick and the San Francisco peaks have been blocks, inspection showing far better results than were expected, and it is believed that

Arizona-1932 (Continued)

control in record time may be accomplished by careful selection of rest trees, proper placing of blocks, and frequent checking in order to keep sufficient poison in the blocks.

Prairie Dogs: Systematic blocking of treated areas of Coconini County is gradually reclaiming thousands of acres of valuable grazing lands, as well as allowing farmers to realize an ambition to raise a crop without prairie dogs.

C. G. Lueker
Flagstaff

CALIFORNIA

1932

Mendocino County Agricultural Agent:

Predatory Animals: An annual appropriation of $7,000 was made by the County Board of Supervisors to maintain the Federal, State, and county cooperative predatory animal control project. The efficiency of this work has been demonstrated in that practically no losses have been sustained from coyotes during the past year. While the earlier efforts of this service have been chiefly directed against coyotes, attention is being diverted to bear, bob-cats, and mountain lions, which at the present time are responsible for losses of livestock and wild game. Livestock owners report the greatest freedom from depredations by predatory animals since this project was undertaken. Sportsmen report the presence of greater numbers of all classes of wild game, which is attributed to the work.

C. S. Myszko
R. D. Foote
Ukiah, Ct. Hs.

COLORADO

1934

Elbert County Agricultural Agent:

Prairie Dog Control: At the request of a considerable number of farmers and stockmen, a survey of prairie-dog infestation was made in June by circular, with return questionnaire to all farmers of the county. An approximate 85% return was secured on this questionnaire.

A summary of the prairie-dog infestation showed 36,500 acres infested. Contacts were made with local and state relief administrations, and D. D. Green, Leader of Biological Survey, for setting up a project to include the whole county in a prairie-dog campaign. A petition was prepared for county commissioners to F.E.R.A. showing need for this project, and presented by them to the State E.R.A. Director and State Pest Control Committee.

The organization for this project was set up by calling a meeting of those interested in various districts and selecting a county committee, consisting of the county extension agent as county pest control leader, the county

Colorado-1934 (Continued)

F.E.R.A. representative and one county commissioner. Three community organizations for the three major districts of the county were formed by calling a meeting and having each district select three committeemen, one chairman and two other members, for the purpose of carrying out this project. The written project in final form was submitted through the proper channels and was approved early in September. Materials were assembled for the mixing of the poison bait and arrangements completed for a county supervisor and assistance to be rendered through the relief office on the mixing of the poison bait. Arrangements were completed for a mixing plant, storage, and distribution of the poison. As soon as materials were received the county supervisor was secured and supervised daily the work of mixing the poison.

A circular was prepared and sent out to all of those who had replied to the prairie-dog survey, advising that the poison would be available and where and on what dates it could be secured. Arrangements were made and a series of meetings held for those interested in prairie-dog control in each of the nine different communities from October 20 to 30. The freshly mixed poison was taken to these meeting places in amounts to cover the need for each community, each of those attending the meeting was thoroughly instructed as to the methods of poisoning, and the poison was distributed to them. Mimeographed sheets of instructions were included in each sack. Each man who received poison signed a receipt for the amount which he obtained, and agreed (1) to distribute according to directions, (2) to make a report of results on the blank furnished, (3) to assume all responsibility for any malicious poisoning of stock. Distribution of the poison was completed in November.

A summary of the poison distributed, acres of infestation, and so forth, shows 10,000 pounds of poison distributed and used by 164 farmers and ranch owners in covering 36,480 acres with a reported kill of 98%. A very conservative estimate of the value of pasture grass and crops saved by this campaign for the one year is $25,000. Benefit will be resultant from the campaign for the next five years or longer.

Max C. Grandy
Silma

IDAHO

1932

Jefferson County Agricultural Agent:

Rodent Control: Rabbit infestation has been the worst in years. Owing to the short feed on the desert last fall and the excessively deep snows throughout the winter, practically all the rabbits moved into the farms and have remained until spring. Old residents in the territory state that they have never before seen them in such numbers or remained bunched so long. It has not been out of the ordinary to see from 1000 to 2500 rabbits feeding around one hay stack.

In early December, when the extent of the infestation could be determined the Biological Survey stationed a man at Mudlake and for three months he has worked in that vicinity.

Approximately 550 ounces of strychnine have been mixed and distributed through the Mudlake, Hamer, and Roberts districts. Farmers and stockmen were charged just the price of the strychnine in the bait while the county and Biological Survey stood the price of the other ingredients and the labor.

Idaho-1932 (Contined)

In addition, nine to eleven rabbit drives were organized where more than 50,000 rabbits were captured, while several thousand more were killed with guns. It is conservatively estimated that approximately 300,000 rabbits have been killed during the campaign. It is safe to estimate that four-fifths of the rabbits have been exterminated.

D. E. Smith
Rigby

MONTANA

1935

Carter & Fallon Counties Agricultural Agent:

Predatory Animal Control: Early in the fall of 1934, a group of sheepmen on Box Elder in south-central Carter County, held a meeting for the purpose of deciding on some way to control their losses from coyotes. Hight Brothers, airplane pilots of Belle Fourche, were present at the meeting and offered to assist the sheepmen by hunting from airplane for $10 per carcass, giving the sheepmen the pelt, and to furnish their own gasoline providing that the sheepmen would furnish sufficient horses and riders to comb the breaks and coulees and timber to drive out the coyotes where they could spot them and get to them by plane. In a three-day hunt conducted by these sheepmen 33 coyotes were killed, and these Box Elder sheepmen were so enthusiastic over the idea that it was brought up and discussed at the County Wool Growers' Meeting February 16. The Wool Growers' Association heartily endorsed this as a method of control and after considerable correspondence with R. E. Bateman, of the Predatory Animal Control office at Billings, as regards a trapper, the association voted in favor of spending money for airplane hunting rather than using a trapper, assessing the sheepmen in the association 2¢ per head for the purpose of raising sufficient funds to pay the $10 bounty of airplane hunters.

Three of the five districts within the next 15 days carried on a coyote drive, having from 50 to 60 riders strung out over 100-yard distances and combing all the country as they went along. The planes would be perched on a ridge in the area of the riders, and as soon as a coyote was raided the rider would ride in a circle, thus informing the plane that he had located a coyote. Before the coyote could get back under shelter, the plane would be over him and shoot him down. There were 77 coyotes killed in this manner in these drives, and it was due to bad weather only and the start of lambing that the drives were not continued in the other two districts. Furs sold from the 77 coyotes totaled $187.95, and $154 was paid the association through State bounties which were in effect at the time of the hunt, making a total of $1168 collected by the treasurer of the association for the payment of the bounties for coyotes.

At a meeting of the coyote bosses held in June, it was decided that bounty would be paid throughout the summer to any trapper or plane pilot who killed coyotes in any of the five districts providing he turned the carcass over to the Boss of the District. There were 15 or 20 coyotes killed during the summer, but no record has been made of them as yet. A total of 5 planes were used at different times throughout the hunt in the killing of the 77 coyotes.

Montana-1935 (Continued)

Sheepmen within the five districts are loud in their praise of the effectiveness of this method of hunting coyotes.

Keith Sime
Baker

NEVADA

1932

Elko County Agricultural Agent:

Magpie Control: The extremely hard winter of 1931-32 destroyed most of the natural feed for these persistent birds and they became very destructive to the livestock interests. After heavy snows covered the ground in November, great numbers of magpies concentrated around bands of livestock and ranch buildings. They were a constant source of bother to stock as they picked at brands, cuts, eyes, and sores.

Eighty-six different ranchers secured information and free magpie poison from the Farm Bureau office during the winter. Two hundred seventy-five ounces of U. S. Biological Survey poison were used on bacon rind and fresh meat baits. These baits were placed upon posts, in trees and around yards where magpies were troublesome.

Between 700 and 800 baits were placed during the winter. A conservative estimate would be 7,000 magpies killed by poison and in all probability many more than that number were killed.

In June 1932 a drive on magpies nests was conducted by several of the boys in Starr Valley, members of the Starr Valley Rangers 4-H Club. Laurence and Russell Goodale destroyed 575 young magpies and eggs within a radius of two miles on Starr and Boulder Crocks. This gives some idea of the density of the magpie population along the small crocks where they breed.

Mark W. Menke
Elko, Ct. Hs.

1935

Humboldt County Agricultural Agent:

Predatory Animal Control: During a conversation with John Mentaberry, who runs a number of bands of sheep in northern Humboldt County, and who had called at the office to sign an application for a Taylor Grazing permit, he complained that the coyotes had killed 500 of his sheep and lambs valued at $1,500, during the past eight months.

Questioning revealed that Joe Telleria Company, Gabica Brothers, Antonia Redin and Mike Goyhex, who also range sheep in this same district, had suffered proportionate losses, and that the total loss by these few sheepmen amounted to $7,500.

Realizing the seriousness of this condition, if it extended throughout the county, the agent promptly interviewed other sheepmen from sections of the county, and discovered that the condition did exist, that coyotes had already killed sheep and lambs to the value of $31,500 since last fall.

Nevada-1935 (Continued)

The loss of $31,500 already recorded from the slaughter of sheep and lambs by coyotes is 22 times the amount annually appropriated by Humboldt County as its share of the maintenance of the farm bureau office and county agent.

It is the sincere hope and plan of the agent to be able to have the State legislature again revive the cooperative agreement between the U. S. Government and the State of Nevada to re-instate the Biological Survey to systematically control the coyote.

Paul L. Maloney
Winnemucca, Ct. Hs.

OREGON

1934

Lane County Agricultural Agent:

Rodent Control: All of Lane County is in an official Douglas ground squirrel control district and official notice to all persons owning or having dominion over land in Lane County to poison or in other ways exterminate gray digger ground squirrels on their holdings within 30 days from date of first publication of notice was published in six Lane County papers on March 8, 15, and 22. News stories calling attention to the campaign and to the official notice were prepared by the county agent and published in all of the papers of the county on March 8 or 9.

During 1934, nine rodent control supervisors appointed by the county court poisoned gray digger ground squirrels on 71 tracts of land containing a total of 9,451 acres. The county court paid the supervisors for labor and poison barley used in this work and will collect the amounts due from various owners with their taxes. In addition to this work where the expense of poisoning squirrels was charged against land owners, three farmers poisoned squirrels on government land with 50 pounds of poison barley furnished by the U. S. Bureau of Biological Survey through the office of the county agent. In these cases the farmers on land adjoining the government land donated the work required to distribute the poison bait.

A feature of the 1934 squirrel control campaign was a contest for young folks planned by the rodent control project committee and directed by R. C. Kuehner, county club agent. The county agent provided from his rodent control fund $5 for use as cash prizes in this contest. There was great interest in the contest and many rodents of all kinds were killed as a result.

O. S. Fletcher
Eugene

UTAH

1936

Uintah County Agricultural Agent:

Mormon Cricket Control: The cricket control project was started May 12, 1936, on Blue Mountain, east of Vernal, on an infestation of about

Utah-1936 (Continued)

23,040 acres. This was rather late in the year to start as the crickets were in their third and fourth stages of growth.

The first method attempted was that of spraying the crickets with a dry mixture of powdered limestone and arsenic dust. After dusting with this powder for two weeks no results were evident, so this system was abandoned.

The second method used was to place a galvanized sheet iron fence about a foot in advance of a moving body of crickets. The crickets on reaching the fence, turned one way or the other and followed it. At frequent intervals chutes were placed, narrowing up to about a foot in width. At this point a galvanized iron bottom is placed in the bottom of the chute. This bottom ends in a dip which allows the crickets to fall into a pit dug under the end of the chute.

The crickets crawl on the galvanized iron until it steepens and then continue to slide into the pit. The edges of the pit are partly covered with galvanized iron so no crickets can get away. They are easily disposed of in the pit, either by burying or burning.

With only 3/4 mile of fence and 15 pits, over 200 bushels of crickets were killed in about two weeks.

In case the march of crickets is changes to another locality, 20 men can move the fence and prepare new pits in half a day. This method is very efficient at any time the cricket armies are moving.

Russell R. Keetch
Vernal

WYOMING

1936

Sheridan County Agricultural Agent:

Magpies: Last winter during the extreme cold the magpie depredations were extremely serious throughout the county. As a result, in cooperation with Oliver Robinson, representative of the Bureau of Biological Survey, letters were sent to all stockmen in which plans for a magpie trap were given. There were approximately 25 of these traps made.

A campaign was put on by the county to cut down the numbers of magpies, and some 5,000 were brought in at 5¢ per head.

These magpie traps were found to be very effective when properly taken care of andproperly baited. It is necessary, however, to move these traps from time to time as the magpies get more or less used to them, and the moving seems to make them more attractive.

There has been some criticism by some organizations as to whether or not the magpies actually do much damage. The stockmen, however, are of the unanimous opinion that in cold weather when everything else is frozen up, the magpies feed on calves and new-born lambs and do considerable annoying to all stock in general.

The trap has been recommended in the place of poison, because it is safe and poison is never safe. For that reason it is gaining more in favor with the stockmen than is the use of poison bait.

E. A. Reeves
Sheridan, Ct. Hs.

Extension Service Circular 281 January 1938

Summary of Range-Livestock and Range-Management Extension Work in the Eleven Western States 1932 to 1936, Inclusive

Part II, Sections 1 and 2

This circular is stapled in three separate sections as follows:

(1) Part I, Section 1.
(2) Part I, Sections 2 and 3.
(3) Part II, Sections 1 and 2.

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